

***** STN Columbus *****

FILE HOME ENTERED AT 08:38:04 ON 07 SEP 2000

=> file medicine

COST IN U.S. DOLLARS	ENTRY	SINCE FILE	TOTAL
FULL ESTIMATED COST	0.15	0.15	

FILE MEDLINE ENTERED AT 08:38:17 ON 07 SEP 2000

FILE LAST UPDATED: 1 SEP 2000 (20000901/CP) FILE COVERS 1960 TO DATE.

MEDLINE has been reloaded to reflect the annual MeSH changes made by the National Library of Medicine for 2000. Enter HELP RLOAD for details.

The OLD MEDLINE file segment now contains data from 1958 through 1965. Enter HELP CONTENT for details.

Left, right, and simultaneous left and right truncation are available in the Basic Index. See HELP SUFFIXES for details.

THIS FILE CONTAINS CAS REGISTRY NUMBERS FOR EASY AND ACCURATE SUBSTANCE IDENTIFICATION.

=> intervertebral disc/ab,bi

INTERVERTEBRAL IS NOT A RECOGNIZED COMMAND. The previous command name entered was not recognized by the system.

For a list of commands available to you in the current file, enter "HELP COMMANDS" at an arrow prompt (=).

=> s intervertebral disc/ab,bi

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14933 INTERVERTEBRAL/BI
26941 DISC/BI
5401617 AB/FA
1365 INTERVERTEBRAL DISC/AB
((INTERVERTEBRAL(V)DISC/BI (L) AB/FA)
14933 INTERVERTEBRAL/BI
26941 DISC/BI
1928 INTERVERTEBRAL DISC/BI
((INTERVERTEBRAL(V)DISC/BI)
1928 INTERVERTEBRAL DISC/AB,BI
L1 1928 INTERVERTEBRAL DISC/AB,BI
=> s l1 and (implant? or transplant?)/ab,bi

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129989 IMPLANT/BI
5401617 AB/FA
84121 IMPLANT/AB
(IMPLANT/BI (L) AB/FA)
129989 IMPLANT/BI
281209 TRANSPLANT/BI
5401617 AB/FA
93564 TRANSPLANT/AB
(TRANSPLANT/BI (L) AB/FA)
281209 TRANSPLANT/BI
L2 81 L1 AND (IMPLANT? OR TRANSPLANT?)/AB,BI
=> s l2 and human/ab,bi

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=> s l2 and human/ab,bi

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7004169 HUMAN/BI
5401617 AB/FA
586781 HUMAN/AB
(HUMAN/BI (L) AB/FA)
7004169 HUMAN/BI
L3 61 L2 AND HUMAN/AB,BI
=> s l3 and (expanded or expansion)/ab,bi

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=> s l3 and (expanded or expansion)/ab,bi

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18940 EXPANDED/BI
5401617 AB/FA
17143 EXPANDED/AB
(EXPANDED/BI (L) AB/FA)
18940 EXPANDED/BI
28609 EXPANSION/BI
5401617 AB/FA
24916 EXPANSION/AB
(EXPANSION/BI (L) AB/FA)
28609 EXPANSION/BI
L4 0 L3 AND (EXPANDED OR EXPANSION)/AB,BI
=> s l3 and treat/ab,bi

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=> s l3 and treat/ab,bi

```

1513113 TREAT/BI
5401617 AB/FA
1134797 TREAT/AB
(TREAT/BI (L) AB/FA)
1513113 TREAT/BI
L5 28 L3 AND TREAT/AB,BI
=> d l- bib ab

```

=> d l- bib ab

YOU HAVE REQUESTED DATA FROM 28 ANSWERS. CONTINUE: Y/(N)Y

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L5 ANSWER 1 OF 28 MEDLINE
AN 2000051814 MEDLINE
DN 20051814
TI Acute postoperative aggravation of radiculopathy as a complication of free fat ***transplantation*** in lumbar disc surgery: case report. AU Chuang T Y, Chen W J, Chen L H, Niu C C, Shih C H

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CS Department of Orthopedic Surgery, Chang Gung Memorial Hospital, Taipei, Taiwan, R.O.C.
SO CHANG-KENG I HSUEH TSA CHIH, (1999 Sep) 22 (3) 498-502.
Journal code: CHG.

CY CHINA (REPUBLIC: 1949-)
DT Journal: Article, (JOURNAL ARTICLE)
LA English
EM 200002
EW 20000204
AB This case report illustrates a rare case of motor weakness caused by a free fat graft herniation. A 40-year-old woman who had undergone surgery for a herniated lumbar ***intervertebral*** ***disc*** experienced right lower leg weakness. On magnetic resonance image (MRI) a herniated free fat graft was noted. An emergent operation was performed and the herniated fat graft was removed. Postoperatively, the patient recovered well with improvement of the motor weakness. MRI is a good method for diagnosis of fat graft herniation. The mechanisms of this complication have been documented, and the size of the fat graft plays an important role. The methods for prevention of this herniation are also discussed.

Although the ***transplantation*** of adipose tissue has many advantages, including the prevention of postoperative epidural fibrosis. When a great care is needed when applying a fat graft intra-operatively. postoperative neurologic deficit develops, herniation of the fat graft must be considered. An emergent operation is the ***treatment*** of choice for this particular complication.

L5 ANSWER 2 OF 28 MEDLINE
AN 2000010727 MEDLINE
DN 20010727
TI Revision strategies for salvaging or improving failed cylindrical cages.

AU McAfee P C, Cunningham B W, Lee G A, Ohtogoso C M, Haggerty C J, Fedder I, L. Griffith S L
CS Scoliosis and Spine Center, Union Memorial Hospital Baltimore, Maryland, USA.
SO SPINE, (1999 Oct 15) 24 (20) 2147-53.
Journal code: UNK. ISSN: 0362-2436.
CY United States
DT Journal: Article, (JOURNAL ARTICLE)
LA English

CS Department of Orthopedic Surgery, Chang Gung Memorial Hospital, Taipei, Taiwan, R.O.C.
SO CHANG-KENG I HSUEH TSA CHIH, (1999 Sep) 22 (3) 498-502.
Journal code: CHG.

FS Priority Journals

EM 200001

EW 20000104

AB STUDY DESIGN: This is a review of 20 patients who experienced failure of threaded interbody fusion cages and underwent surgical correction

OBJECTIVE: To review the causes and possible

treatment

strategies for failed cylindrical cages. SUMMARY OF BACKGROUND DATA:

Intraoperative complications have been described in the past, however,

management of the postoperative patient with failure of interbody fusion devices has not been described. METHODS: In 20 patients with failed

threaded titanium fusion cages (18 Bageby and Kirsch Devices [BAK], Sulzer-Spina Tech, Minneapolis, MN), 2 Ray Threaded Fusion Cages [Ray TEC, Surgical Dynamics, Norwalk, CT] who underwent revision surgery, all had

failure before successful arthrodesis was achieved. Eight of the original titanium cages had been inserted anteriorly (7 laparoscopically), and 12

had been inserted for posterior interbody lumbar fusion. Before the revision surgery, five of the ***implants*** were thought to be solid by the referring surgeon, but pseudarthrosis was clearly present in all.

In addition, 14 other explanted BAK devices were subjected to undecalcified histologic preparation, quantitative histomorphometry, and

histopathologic analysis. RESULTS: The average length of time before revision surgery (***implant*** duration) was 31.8 weeks (range, 1-156

weeks). The most common revision procedure was posterior exploration of the symptomatic nerve root with foraminotomy for unrecognized lateral recess stenosis (1 cases) or excision of iatrogenically herniated ***intervertebral*** ***disc*** fragments (4 cases).

However, four cages inserted through posterior exposure during an interbody lumbar fusion procedure had to be removed because of migration into the

spinal canal. In nine cases posterior pedicle screw instrumentation was necessary in addition to posterolateral fusion using iliac crest bone grafting. CONCLUSIONS: All 20 cages failed because of surgical technique rather than an intrinsic defect in fusion cage technology. The factors associated with failure of the original insertion procedure were failure to achieve

adequate distraction of the annulus fibrosis, undersized cages, especially when placed through the posterior interbody lumbar fusion approach,

cerebrospinal fluid leakage or pseudomeningocele. Type 2 diabetes mellitus, the use of local bone graft rather than iliac crest inside the cage, anterior insertion in an excessively lateral position resulting in symptoms of a far lateral disc herniation, and failure to identify the spinal midline during an anterior approach.

L5 ANSWER 3 OF 28 MEDLINE

AN 1999436769 MEDLINE

DN 999436769

TI [The x-ray follow-up study of the cervical spine after anterior fusion with titanium disk. ***implants***]

Röntgen-Verlaufsuntersuchung der Halswirbelsäule nach anteriorer Fusion mit Titaninterponaten.

AU Biedert J, Hutzlmann A, Rama B, Heller M
CS Klinik für Diagnostische Radiologie, Klinikum der Christian-Albrechts-

Universität Kiel, juergen.biedert@radi.uni-kiel.de
SO ROFO, FORTSCHRITTE AUF DEM GEBIETE DER RÖNTGENSTRALHEN UND DER NEUEN

BILDBEBEIDEN VERFAHREN. (1999 Aug) 171 (2) 95-9.

Journal code: ATR, ISSN: 0936-6652.

CY GERMANY: Germany, Federal Republic of
DT Journal, Article, (JOURNAL ARTICLE)

LA German

FS Priority Journals, Cancer Journals

EM 199912

AB PURPOSE: We examined the postoperative changes of the cervical spine after

treatment of cervical nerve root compression with anterior cervical discectomy and fusion with a new titanium ***intervertebral***

disc. PATIENTS AND METHODS: 37 patients were examined prior to, as

well as 4 days, 6 weeks, and 7 months after surgery. Lateral view X-rays and functional imaging were used to evaluate posture and mobility of the cervical spine, the position of the ***implants***, and the reactions

of adjacent bone structures. RESULTS: ***Implantation*** of the titanium disc led to post-operative distraction of the intervertebral space and slight lordosis. Within the first 6 months a slight loss of distraction and re-kyphosis due to impression of the ***implants***

into the vertebral end-plates were found in all patients. We noted partial intrusions into the vertebral end-plates in 10/42 segments and

slight

mobility of the ***implants*** in 14/42 segments. Both groups of patients showed reactive spondylosis and local symptoms due to loosening

of the ***implants***. The pain subsided after onset of bone bridging and stable fixation of the loosened discs. CONCLUSIONS: The titanium ***intervertebral*** ***disc*** provides initial distraction

of the fusion segments with partial recurrence of kyphosis during the subsequent course. Loosening of the ***implants*** with local symptoms can be

evaluated with follow-up X-rays and functional imaging.

L5 ANSWER 4 OF 28 MEDLINE

AN 1999245617 MEDLINE

DN 99245617

TI Cervical monosegmental interbody fusion using titanium ***implants***

in degenerative, ***intervertebral*** ***disc*** disease.

AU al-Hami S

CS Neurosurgical Clinic Fulda, Germany. Al-Hami@online.de

SO MINIMALLY INVASIVE NEUROSURGERY. (1999 Mar) 42 (1) 10-7.

Journal code: B34, ISSN: 0946-7211.

CY GERMANY: Germany, Federal Republic of
DT (CLINICAL TRIAL)

Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199909

EW 19990903

AB Over a period of 12 months at the Klinik für Neurochirurgie (belonging to the Städtischen Klinikums Fulda) 54 patients were operated upon

after presenting with cervical radiculopathy or myelopathy in single vertebral segments with intravertebral disc involvement and/or

osteochondrosis. The surgical intervention of all patients was carried out microsurgically by the author using a ventral approach in accordance with the operative procedure and technique as described by Smith and Robinson [59].

In no patient was an additional bone plating necessary. Intraoperative data together with postoperative clinical, neurological, and radiological progress controls at 6 weeks and 3 months were, in the frame of a clinical perspective, non-random study, analysed and evaluated. There were

no complications during the operative procedure or postoperatively, and of note, in no case was there any ***implant*** dislocation or

neurological deterioration. Radicular pain was relieved in 98% of patients. Non-radicular pain--neck and shoulder pain--was eradicated in 42.

patients (78%), improvement achieved in 8 patients (15%) and 4 patients (7%) still complained of neck pain 3 months postoperatively.

Motor radicular deficit was completely relieved in 34 of 38 patients (89%) and in 3 patients (8%) there was a considerable improvement. Similar figures were obtained with relation to radicular sensory deficit. Of 5 patients who presented preoperatively with cervical myelopathy, 3 improved considerably and 2 remained unchanged. For all 50 patients fine computer tomographic examination of the cervical region with 3-dimensional reconstruction was performed immediately postoperatively and at 3 months.

All patients showed a correct positioning of the ***implant*** and either a complete or convincing bony ingrowth between the operated vertebrae. To summarise, the presented clinical and radiological study shows the cancellous bone tissue filled, titanium ***implant*** to be a meaningful and useable alternative to conventional methods of spinal fusion. Essential advantages: (i) Negation of "bone procedure" complications at the iliac crest and neck combined with a simple surgical procedure. (ii) Reduced hospitalisation time and subsequent ***treatment*** costs. (iii) The good biocompatibility of titanium combined with a solid stability at the fusion site. Despite the excellent initial operative results the absence of long term results must be born in mind.

L5 ANSWER 5 OF 28 MEDLINE
AN 1999086320 MEDLINE
DN 99086320
T1 Percutaneous ***treatment*** of rare iatrogenic arteriovenous fistulas of the lower limbs.

AU Burger T, Meyer F, Tautenhahn J, Halloul Z, Fatiké J
CS Clinic for General, Abdominal and Vascular Surgery, Surgical Center, Medical Faculty, Otto von Guericke University, Magdeburg, Germany.
SO INTERNATIONAL SURGERY. (1998 Jul-Sep) 83 (3) 198-201.

Journal code: GUP. ISSN: 0020-8688.

CY Italy

DT Journal, Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 1999004

EW 1999004

AB Postoperative iliac and popliteal arteriovenous fistulas are extremely rare. This article describes the percutaneous endovascular ***treatment*** of iatrogenically induced arteriovenous fistula in two

patients with simultaneous use of intravascular ultrasound. In a 61-year-old woman, a fistula between popliteal artery and vein, inadvertently created during ***implantation*** of a prosthetic knee joint, was ***treated*** with a novel polytetrafluoroethylene (PTFE) stent graft. A 48-year-old man underwent endovascular ***treatment*** of a large fistula between the right common iliac artery and the left common iliac vein, inadvertently induced during surgery on an ***intervertebral*** disc. Congestive heart failure induced by the arteriovenous communication was reduced rapidly. Our results indicate that percutaneous ***treatment*** in conjunction with intravascular ultrasound is a useful therapeutic option for vascular lesions. It is less invasive than open vascular reconstruction and has a comparably high success rate.

L5 ANSWER 6 OF 28 MEDLINE
AN 1998291888 MEDLINE
DN 98291888
T1 Simultaneous combined anterior and posterior lumbar fusion with femoral cortical allograft.

AU Liljenqvist U, O'Brien J P, Renton P
CS Spinal Surgery Unit, London Clinic, UK.
SO EUROPEAN SPINE JOURNAL. (1998) 7 (2) 125-31.
Journal code: B9Y. ISSN: 0940-6719.

CY GERMANY; Germany, Federal Republic of
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 19981003
EW 19981003
AB The radiographic fusion rates, graft behaviour and clinical outcome of 41 patients with simultaneous combined anterior lumbar interbody fusion and posterior arthrodesis with translamina screws were reviewed independently. In all patients a femoral cortical allograft (FCA) ring filled with autologous iliac crest cancellous bone was used

anteriorly to replace the disc and achieve interbody fusion. The follow-up averaged 30.6 months, with a minimum follow-up of 24 months. All patients had disabling low-back pain with different degrees of radiating leg pain and either discogenic pain (n = 24) or a postdiscectomy syndrome (n = 15) respectively postfusion syndrome (n = 2). The overall fusion rate was 95.2% (59 of 62 segments). Time to radiographic fusion averaged 8.7 months (range 2-34 months), and in 66.1% radiographic fusion occurred without significant subsidence. In 18.6% fusion with subsidence resulted from resorption of the FCA and in 15.3% the FCA had protruded into the vertebral body. The posterior ***intervertebral*** disc height (PIVDH) increased postoperatively by 2 mm on average. However, loss of PIVDH was the rule, and occurred within the first 12 months, resulting in a negligible final gain in height of 0.3 mm on average. The segmental lordosis was increased by 3 degrees; however, loss of lordosis during the first 6 postoperative months led to a final gain in lordosis of 1.3 degrees on average. Graft incorporation occurred in 16 of 62 segments (25.8%) and was observed at an average of 21.9 months postoperatively. Subjectively, 82.4% of the patients were satisfied or highly satisfied with the clinical result of the fusion operation. In conclusion, the described technique has proven to be highly effective in achieving a high fusion rate with a good patient outcome.

L5 ANSWER 7 OF 28 MEDLINE
AN 1998083860 MEDLINE
DN 98083860

T1 [Minisegmental internal fixator instrumentation and fusion in ***treatment*** of fractures of the thoracolumbar spine. Indications, technique and results].

Die minisegmentale Fixateur interne-Instrumentation und Fusion in der Behandlung von Frakturen der thoracolumbalen Wirbelsäule. Indikation, Technik und Ergebnisse.

AU Junge A, Goetzen L, von Garsell T, Ziring E, Giannakakis K
CS Klinik für Unfallchirurgie, Philipps-Universität Marburg
SO UNFALLCHIRURG. (1997 Nov) 100 (11) 880-7.
Journal code: UNP. ISSN: 0177-5537.
CY GERMANY; Germany, Federal Republic of
DT Journal, Article; (JOURNAL ARTICLE)
LA German

EM 199804
EW 19980404
AB Dorsal fusion with the internal fixator has become the standard
treatment of instabilities and deformities of the
thoracolumbar spine. With our new device, the modular spine fixator (MSF),
which has been specially designed for short-distance instrumentations, we
have increasingly been ***treating*** unstable injuries of the
thoracolumbar spine by one-level stabilization. Prerequisite is an
accurate evaluation of the indication, including CT and MRI to
assess the involvement of the ***intervertebral*** ***disc*** and the
ligamentous structures. The operative technique differs in some
details from the procedure in more-multi-level instrumentations, especially
concerning the application of the pedicle screws. The
instrumentation is always combined with posterior allogenic bone grafting. Since the
beginning of 1993 we also perform anterior autogenic
transpedicular bone grafting. Between January 1991 and July 1995, 57 one-level
stabilizations with the MSF were performed. Of the 57 patients operated on, 39,
27 men and 12 women, with an average age of 41 years, have had a clinical and
radiographic follow-up examination so far, on average, 27 months
after the accident. Seventeen patients were completely free of pain and 17
patients (were only) sensitive to weather changes or had minor pain during
great physical stress. Five patients had pain even during slight physical
stress or at rest. The preoperatively measured Cobb angle was 15.1
degrees on average, after the operation 5.2 degrees, and at the time of the
follow-up examination amounted to 8.1 degrees. The patients' range of motion
was normal. Only five minor complications have been seen. No
implant fatigue failure has been noted in this series. We derive from these
results that, for correct indications, one-level stabilization can be
performed successfully and should be firmly established in the
operative ***treatment*** of unstable fractures of the thoracolumbar
spine.

L5 ANSWER 8 OF 28 MEDLINE
AN 97283044 MEDLINE
DN 97283044
TI ***Intervertebral*** ***disc*** prosthesis: Results and
prospects for the year 2000.
AU Lemaire J-P, Skalli W, Lavaste F, Templier A, Mendes F, Diop

A. Saury V,
Laloux E
CS Centre d'Etude et de Chirurgie du Rachis, Point Medical, Dijon,
France.
SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH,
(1997 Apr) (337) 64-76. Ref.
66
Journal code: DFY. ISSN: 0009-921X.
CY United States
DI Journal: Article. (JOURNAL ARTICLE)
General Review. (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Abridged Index Medicus Journals: Priority Journals
EM 199708
AB Presently, the kinematic disc prosthesis model (SB Charite) is
the best disc replacement compromise, and is the basis of the evolution of
the prosthetic concept at the dawn of the year 2000. Clinical results
of a homogeneous series of 105 cases with a mean followup of 51
months show 79% of the patients had an excellent result and 87% returned to work,
radiologically, these results correlated with restoration of a well
balanced lordosis and with segmental mobility. Factors leading to
failure are posterior facet arthritis, osteoporosis, structural deformities, and
secondary facet pain. Two- and 3-dimensional numeric modeling
enables one to study the total facet joint loading and the maximal local loading
on the facet. Dissection of the stiffness in pure rotation and stiffness
in translation of the disc are the bases of the technologic
improvement.

L5 ANSWER 9 OF 28 MEDLINE
AN 96432081 MEDLINE
DN 96432081
TI Diagnostic and therapeutic spinal arthroscopy.
AU Karabin P
CS Department of Orthopaedic Surgery, University of Pennsylvania
Medical School, Philadelphia, USA.
SO NEUROSURGERY CLINICS OF NORTH AMERICA, (1996
Jan) 7 (1) 65-76. Ref: 49
Journal code: BJT. ISSN: 1042-3680.
CY United States
DI Journal: Article. (JOURNAL ARTICLE)
General Review. (REVIEW)
(REVIEW, TUTORIAL)
LA English
FS Priority Journals
EM 199702
AB Minimally invasive spinal surgery is an attractive alternative
method for

the diagnosis and ***treatment*** of a variety of spinal
disorders.
Minimal insult to the soft tissue structures results in rapid recovery
and an early return to a functional level. Arthroscopic debridement of
intervertebral ***disc*** infections, arthroscopic
interbody fusion, diagnostic temporary fixation of lumbar motion segments,
and intradiscal and pedicular access to the vertebral body for biopsy
purposes are making inroads in the field of minimally invasive spinal
surgery.

L5 ANSWER 10 OF 28 MEDLINE
AN 96342581 MEDLINE
DN 96342581
TI Microsurgical anterior decompression and internal fixation with
iliac bone graft and titanium plates for ***treatment*** of cervical
intervertebral ***disc*** herniation.
AU Muhlbaier M, Sarniger W, Aicholzer M, Sander-Plassmann M
CS Department of Neurosurgery, University of Vienna Medical
School, Austria.
SO ACTA NEUROCHIRURGICA, (1995) 134 (3-4) 207-13.
Journal code: 19C. ISSN: 0001-6268.
CY Austria
DI Journal: Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199612
AB 42 cervical interbody fusions with iliac bone graft and titanium
plate fixation were performed between October 1991 and March 1994.
The mean follow up period in this study was 10.7 months. In 32 cases fusion
was done for 1 and in 10 cases for 2 segments. 2 different types of plates
were used. In 25 cases micro-osteosynthesis plates and screws with
2.7 mm diameter were used, and in 17 cases cervical H-plates and screws
with 3.5 mm diameter. A favourable outcome was achieved in 31 of 42
cases (74%). Satisfactory pain relief was achieved in 90%. For radicular motor
deficit good results were obtained in 84% and for cervical myelopathy in
54%. The 2 different types of plates showed a remarkable difference in the
clinical outcome. The results were regarded favourable in 15 of 25
microplate fusions (60%) and in 16 of 17 H-plate fusions (94%). Compression
bone graft was seen in 5 patients of the micro plate group, however,
radiological signs for fusion were present in all 42 cases at follow
up.

Major surgical complications, damage to neural structures or neurological deterioration did not occur in this study. Plate fixation in cervical interbody fusions seems to be a safe procedure and may reduce

related complications at the fusion site if the plates and screws are sufficiently well proportioned. A favourable impact upon the results for cervical interbody fusion might be expected and should be further investigated in a long term follow up study.

L5 ANSWER 11 OF 28 MEDLINE
AN 96272130 MEDLINE

DN 96272130
TI Median corpectomy in cervical spondylotic multisegmental stenosis

AU Burger R, Torn J C, Vinze G H, Hofmann E, Reiners K, Roosen K

CS Neurochirurgische Klinik, Universitat Wurzburg
SO ZENTRALBLATT FUR NEUROCHIRURGIE, (1996) 57 (2) 62-9.

Journal code: Y6C, ISSN: 0044-4251,

CY GERMANY, Germany, Federal Republic of

DT Journal: Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199611

AB Cervical median corpectomy as an alternative to laminoplasty and laminectomy has been suggested as an effective ***treatment***

for cervical spondylotic myelopathy (CSM) in cases of multisegmental spondylotic stenosis. We report on our experience with this

procedure with particular reference to neurological outcome and complications.

Median

corpectomy was performed in 17 cases (3 female, 14 male; mean age 59 yrs,

(41-80 yrs.) with cervical myelopathy (CM) and radiologically diagnosed multisegmental spondylotic stenosis and spinal cord compression

seen on MRI. The degree of stenosis was determined by means of the modified

Pavlov's index (ratio between spinal canal width at the level of the

intervertebral ***disc*** and the diameter of the

vertebral body itself) 3/17 patients suffered from acute, 4/17 from subacute and

10/17 from chronic CM. Single level corpectomy was performed in 9 cases,

one and a half vertebrae were removed in 2 cases and dual level corpectomy

was performed in the remaining 6 cases. All patients received an autologous bone graft and AO - anterior plate stabilization or were

stabilized as described by Morscher. Postoperative follow - up was possible in 16/17 cases over a mean time of 13.5 months.

Myelopathy was

graded according to Nurick's scale. Postoperatively, 12% with chronic CM

improved by two grades, 38% (2 pts. with acute, 3 with subacute and 1 with

chronic CM) improved by one grade. The other patients remained stable, none showed worsening of their myelopathy. Paresis improved in

92%, sensory deficits in 69%, spasticity in 73%, pain in 60%, and vegetative

disturbances in 100% of all patients presenting these preoperative symptoms respectively. One patient died due to esophageal perforation and

subsequent lethal mediastinitis caused by screw loosening 4 months following surgery and after initial neurological improvement. 4 other

patients experienced screw loosening, three with scoliosis, one remained

clinically asymptomatic with concomitant graft displacement in two of these. One patient had to be re-operated due to a hematoma at the iliac

crest and 2 suffered from a pelvic fracture of the spine iliac at the site of graft removal. With respect to the neurological improvement,

especially to the motor function and spasticity, median corpectomy can be

regarded as an effective procedure in selected cases with cervical myelopathy, even when ***treatment*** related complications are taken

into consideration.

L5 ANSWER 12 OF 28 MEDLINE

AN 96230624 MEDLINE

DN 96230624

TI Laparoscopic 2-level fusion of the lumbar spine with Bagby and Kusch

implants]

Laparoscopic 2-Eigenfusion der lumbalen Wirbelsaule mit

Bagby- und Kusch(BAK) ***Implantat***

AU Olinger A, Hildebrandt U, Pistonus G, Lindemann W, Menger MD

CS Abteilung fur Unfall-, Hand- und Wiederherstellungschirurgie, Chirurgische

Universitaet des Saarlandes, Homburg/Saar.

SO CHIRURG, (1996 Apr) 67 (4) 248-50.

Journal code: DSU, ISSN: 0009-4722.

CY GERMANY, Germany, Federal Republic of

DT Journal: Article, (JOURNAL ARTICLE)

LA German

FS Priority Journals

EM 199609

AB In a 50-year-old female patient, presenting with permanent low

lumbar back pain and intermittent neurological alterations due to degenerative

disc

disease L4-5 and L5-S1 we demonstrate that two-level anterior

interbody

fusion can be performed via laparoscopic transabdominal instrumentation

using BAK interbody ***implants*** ***intervertebral***

disc space L5-S1 was stabilized approaching the spine

caudally of the aortic bifurcation, while disc space L4-L5 required an approach

from the left lateral aspect, mobilizing the aorta and vena cava to the right.

The postoperative course was without complications and allowed discharge

from the hospital on day 8. X-ray control 4 months later demonstrated

restoration of adequate disc space at L4-L5 and L5-S1 and appropriate

positioning of the ***implants***

L5 ANSWER 13 OF 28 MEDLINE

AN 96128411 MEDLINE

DN 96128411

TI Thoracoscopic repair of thoracic spine trauma.

AU Hertlein H, Hardt W H, Diekmann H, Schumann M, Lob G

CS Department of Surgery, Klinikum Grosshadern, Ludwig-Maximilians University

Medical School, Munich, Germany.

SO EUROPEAN SPINE JOURNAL, (1995) 4 (5) 302-7.

Journal code: B9Y, ISSN: 0940-6719.

CY GERMANY, Germany, Federal Republic of

DT Journal: Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199605

AB Modern concepts of ***treating*** thoracic and lumbar spinal trauma

are based on posterior transpedicular fixation techniques which confer

angular stability and instrument only a few levels of the spine. In addition, to prevent secondary losses in postoperative reduction of

kyphotic deformities, transpedicular resection of torn discs, and inter-

and intracorporeal bone grafting are included in the repair procedures for

the entire damaged motion segment. However, due to the small size of the

pedicles, a transpedicular approach to the injured vertebral body is not

possible in the upper thoracic spine. Patients whose thoracic spine trauma

is not serious enough to require ventral instrumentation through open

thoracotomy, but who present with an unstable vertebral fracture, may

profit from additional ventral bone grafting to stabilize the fracture. The present study examined the feasibility of thoracoscopic ventral bone

grafting in seven patients with unstable fractures of the upper

thoracic spine. For primary repair, we stabilized the fracture by using posterior transpedicular screw systems (rods or plates). Simultaneously, spongiosa was harvested from the posterior iliac crest and deepfrozen. Repair was completed a few days later via a ventral thoroscopic approach. The main location of the ventral osseous defect was identified by intraoperative radiology. After mechanical removal of destroyed connective tissue and disc material, fusion was performed using the previously harvested spongiosa, which was placed into the ***intervertebral***
 disc space and the anterior osseous defect. Our results show thoroscopic bone grafting to be technically possible and associated with low morbidity, with a potential of yielding satisfactory long-term results.

L5 ANSWER 14 OF 28 MEDLINE
 AN 95323517 MEDLINE
 DN 95323517
 T1 Mechanical performance of the Dick internal fixator: a clinical study of 75 patients

AU Rommens P M, Weyns F, Van Calenberg F, Goffin J, Broos P L
 CS Department of Traumatology and Emergency Surgery, Hospital of the Catholic University of Leuven, Belgium.
 SO EUROPEAN SPINE JOURNAL, (1995) 4 (2) 104-9.
 Journal code: B9Y, ISSN: 0940-6719.
 CY GERMANY: Germany, Federal Republic of
 DT Journal: Article. (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199510
 AB A consecutive series of 75 patients with fractures of the thoracolumbar spine, stabilized with the Dick internal fixator, was studied retrospectively. Posttraumatic kyphosis was measured on the preoperative lateral radiograph by the Cobb angle and the wedge angle and the results were compared with angles measured on the radiographs after instrumentation and after removal of the ***implants***. The presence and number of broken Schanz screws was noted. In the whole group, an average correction of kyphosis of 15.5 degrees was obtained, but 7.6 degrees was lost again at follow-up. In comparing the kyphotic angle with the wedge angle, we found that this loss was almost exclusively

situated in the upper ***intervertebral*** ***disc*** space. In the group of patients with transpedicular intravertebral bone grafting, the relative loss of correction in the wedge angle was smaller than in the group without bone grafting, while the relative loss of correction of the kyphotic angle was similar. Schanz screw breakage was present in 13.3% of patients, occurring in 4.6% of inserted screws. In the group of patients with broken Schanz screws, the loss of correction in the wedge angle was somewhat higher, but not markedly different from that of the patient group without breakage of screws. Risk of screw breakage was enhanced by laminectomy and reduced by transpedicular bone grafting. Screw breakage or important loss of correction did not influence the neurological outcome of the patients. The Dick internal fixator is a very reliable ***implant***, even in patients with highly unstable fractures. (ABSTRACT TRUNCATED AT 250 WORDS)

L5 ANSWER 15 OF 28 MEDLINE
 AN 95179585 MEDLINE
 DN 95179585
 T1 Anterior lumbar fusion using a hybrid interbody graft. A preliminary radiographic report.
 AU Holte D C, O'Brien J P, Renton P
 CS London Clinic, UK.
 SO EUROPEAN SPINE JOURNAL, (1994) 3 (1) 32-8. Ref: 32
 Journal code: B9Y, ISSN: 0940-6719.
 CY GERMANY: Germany, Federal Republic of
 DT Journal: Article. (JOURNAL ARTICLE)
 LA English
 FS General Review. (REVIEW)
 EM 199506
 AB This is a radiographic report of 40 patients (20 men, 20 women) who underwent anterior lumbar interbody fusions (73 levels) utilizing a "hybrid" interbody graft composed of femoral cortical allograft (FCA) bone and iliac crest cancellous autograft bone. The average age at surgery was 38 years (range 17-64 years), and follow-up averaged 1.4 years (range 1.0-2.4 years). Nineteen of the patients had undergone previous lumbar surgery. Thirty-two patients (63 levels) underwent anterior fusion combined with some type of posterior fixation, and eight patients

(10 levels) had no posterior fixation. Types of posterior fixation included: for 20 patients (36 levels) Steffee variable screw placement fixation, for 10 patients (23 levels) translaminar facet screws (TFS), for 1 patient (3 levels) Knott rods and for 1 patient (1 level) facet screws. Based on the persistence of lucent lines at the graft-host interface, three patients (one level each) were felt to have non-unions at their latest follow-ups at 1.4, 1.5 and 2.0 years, respectively. Two of these patients had no posterior fixation, and the other had TFS fixation. The overall fusion rate was 96% (70 of 73 levels). The fusion rate for all levels ***treated*** with posterior fixation was 98% compared with 75% for those without fixation. ***intervertebral*** ***disc*** heights (IVDH) were measured on all films and corrected for magnification with computer assistance. On average, the IVDH was increased postoperatively but returned to preoperative values at follow-up. IVDH loss was independent of the type of instrumentation used. No complications arose from the use of the hybrid graft. (ABSTRACT TRUNCATED AT 250 WORDS)

L5 ANSWER 16 OF 28 MEDLINE
 AN 95055469 MEDLINE
 DN 95055469
 T1 Aspergillus spondylodiscitis: successful conservative ***treatment*** in 9 cases.
 AU Cortet B, Richard R, Deprez X, Lucet L, Filipo R M, Le Loet X, Daquesnoy B, Delcambre B
 CS Department of Rheumatology, Centre Andre Vernetge, Centre Hospitalier Regional et Universitaire de Lille, France.
 SO JOURNAL OF RHEUMATOLOGY, (1994 Jul) 21 (7) 1287-91.
 Journal code: JWX, ISSN: 0315-162X.
 CY Canada
 DT Journal: Article. (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199502
 AB OBJECTIVE: To assess the effectiveness of medical ***treatment*** by clinical, radiological, and biological analysis of outcome in 9 patients with aspergillus spondylodiscitis. METHODS: Retrospective study including 9 patients with aspergillus discitis, in which 7 were immunosuppressed; 3

were heart ***transplant*** patients, 2 had acute lymphoblastic leukemia, 1 hairy cell leukemia and one was receiving prednisone for bronchial asthma. Four patients had isolated spinal aspergillus infection. In 4 cases, disc space infection occurred after pulmonary aspergillus. In the last case the spondylodiscitis occurred after aspergillus endocarditis and mycotic limb embolism. In all cases a percutaneous needle biopsy of the ***intervertebral*** disc was performed; the subsequent culture produced *Aspergillus fumigatus* in 8 cases and *Aspergillus flavus* in 1. Itraconazole was given to all patients (mean dose: 350 mg/day); it was given alone in 2 cases, in addition to fluocytosine and amphotericin B in 6 cases, and in addition to amphotericin B in the last case. RESULTS: Improvement was obtained in the 9 cases, with full recovery in the absence of any surgical debridement after a mean ***treatment*** duration of 5.5 months and a mean followup delay of 16 months. CONCLUSION: Early recognition of aspergillus spondylodiscitis in immunocompromised hosts is important. Itraconazole alone or in combination is an effective therapy. There may be an increased incidence of aspergillus discitis due to the increasing frequency of immunosuppression associated conditions including organ ***transplantation***, chemotherapy, or acquired immune deficiency syndrome.

L5 ANSWER 17 OF 28 MEDLINE
AN 94096098 MEDLINE
DN 94096098
TI The surgical technique of anterior cervical fusion using bone grafts obtained from cervical vertebral bodies [see comments]
CM Comment in: J Neurosurg 1994 Nov;81(5):807-8
AU Iau T; Kamada K; Kobayashi N; Mabuchi S
CS Department of Neurosurgery, Kunitomo Rousai Hospital, Japan.
SO JOURNAL OF NEUROSURGERY. (1994 Jan) 80 (1) 16-9.
Journal code: JD3. ISSN: 0022-3085.

CY United States
DT Journal Article. (JOURNAL ARTICLE)
LA English
FS Abstracted Index Medicus Journals, Priority Journals, Cancer Journals
EM 199404
AB The authors describe the surgical technique of anterior cervical fusion using bone grafts obtained from cervical vertebral bodies. This series consisted of 90 patients with cervical ***intervertebral*** disc disease suffering from cervical spondylotic myelopathy. Thirty-five patients were operated on at one level, 33 at two levels,

and 22 at three levels. Postoperative x-ray films showed solid bone fusion in all patients at a mean follow-up time of 24 months (range 1 year to 3 years 6 months). Anterior angulation was found in four (4.4%) of the 90 patients. This surgical procedure has two major advantages: 1) there are no complications related to the iliac donor site, allowing early patient mobilization; and 2) the extensive posterior spur can be removed safely and easily under a wide operative field without damaging the spinal cord and nerve roots.

L5 ANSWER 18 OF 28 MEDLINE
AN 91347733 MEDLINE
DN 91347733
TI Lumbar ***intervertebral*** disc prosthesis. An experimental study.
AU Hou T S; Tu K Y; Xu Y K; Li Z B; Cai A H; Wang H C
CS Department of Orthopedics, Changzheng Hospital, Shanghai.
SO CHINESE MEDICAL JOURNAL. (1991 May) 104 (5) 381-6.
Journal code: D3B. ISSN: 0366-6999.

CY China
DT Journal Article. (JOURNAL ARTICLE)
LA English
EM 199112
AB To provide a more effective ***treatment*** and improve the outcome of surgical ***treatment*** of lumbar ***intervertebral*** disc ***disc*** protrusion, the values of lumbar ***disc*** prosthesis (LIDP) were investigated. LIDP was specially designed and made of silicone rubber. The properties of material mechanics were investigated by compressive test and damage test of LIDP specimens. The biocompatibilities of LIDP were observed experimentally in monkeys. The surgical applicabilities were studied by in vitro experiments of fresh ***human*** lumbar spine. The results showed that LIDP has the advantages of good biomechanical applicability, biocompatibility and surgical applicability. LIDP is able to maintain the intervertebral space, stress balance and stability of the lumbar spine after lumbar ***intervertebral*** disc excision, the replacement of LIDP could restore the functions of the lumbar spine and improve the curative

results of disc excision.

L5 ANSWER 19 OF 28 MEDLINE
AN 91332662 MEDLINE
DN 91332662
TI ***Treatment*** of chronic pain by epidural spinal cord stimulation: a 10-year experience.
AU Kumar K; Niah R; Wyant G M
CS Division of Neurosurgery, Plains Health Centre, University of Saskatchewan, Regina, Canada.
SO JOURNAL OF NEUROSURGERY. (1991 Sep) 75 (3) 402-7.
Journal code: JD3. ISSN: 0022-3085.

CY United States
DT Journal Article. (JOURNAL ARTICLE)
LA English
FS Abstracted Index Medicus Journals, Priority Journals, Cancer Journals
EM 199111
AB Epidural spinal cord stimulation by means of chronically ***implanted*** electrodes was carried out on 121 patients with pain of varied benign organic etiology. In 116 patients, the pain was confined to the back and lower extremities and, of these, 56 exhibited the failed-back syndrome. Most patients were referred by a pain management service because of failure of conventional pain ***treatment*** modalities. Electrodes were ***implanted*** at varying sites, dictated by the location of pain. A total of 140 epidural ***implants*** were used: 76 unipolar, 46 Resnais electrodes, 12 bipolar, and six quadripolar. Patients were followed for periods ranging from 6 months to 10 years, with a mean follow-up period of 40 months. Forty-eight patients (40%) were able to control their pain by neurostimulation alone. A further 14 patients (12%), in addition to following a regular stimulation program, needed analgesic supplements to achieve 50% or more relief of the pre-stimulation pain. Pain secondary to arachnoiditis or perineural fibrosis following multiple ***intervertebral*** disc operations, when predominantly confined to one lower extremity, seemed to respond favorably to this ***treatment***. Uniformly good results were also obtained in lower-extremity pain secondary to multiple spondylitis. Pain due to advanced peripheral vascular disease of the lower limbs was well controlled.

and amputation below the knee was delayed for up to 2 years in some patients.

Pain due to cauda equina injury, paraplegic pain, phantom-limb pain, pure midline back pain without radiculopathy, or pain due to primary bone or joint disease seemed to respond less well. Patients who responded to preliminary transcutaneous electrical nerve stimulation generally did well.

implants. Notable complications included wound infection, electrode displacement or fracturing, and fibrosis at the stimulating tip of the electrode. Three patients in this series died due to unrelated causes. Epidural spinal cord stimulation has proven to be an effective and safe means of controlling pain on a long-term basis in selected groups of patients. The mechanism of action of stimulation-produced analgesia remains unclear; further studies to elucidate it might allow spinal cord stimulation to be exploited more effectively in disorders that are currently refractory to this ***treatment*** modality.

L5 ANSWER 20 OF 28 MEDLINE
AN 91320236 MEDLINE
DN 91320236
T1 Development of a prosthetic ***intervertebral***
disc
AU Lee C K, Langrana N A, Parsons J R, Zimmerman M C
CS Department of Orthopaedic Surgery, University of Medicine and Dentistry of New Jersey, New Jersey Medical School, Newark.
SO SPINE. (1991 Jun) 16 (6 Suppl) S233-5.
Journal code: UXX. ISSN: 0362-2436.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199111
AB This article is a preliminary report of a 10-year investigation of the development of an ***intervertebral*** ***disc*** prosthesis.
Spinal fusion is a method for the ***treatment*** of chronic, disabling low-back pain that does not respond to nonoperative effects.
treatments. Spinal fusion, however, has various adverse effects, and the results of spinal fusion are often unpredictable. The goal of this research project was to develop disc prostheses that have mechanical properties very similar to those of natural, normal discs. Two types of disc prosthesis, one with fiber-reinforced polyurethane and the

other with multicomponent, non-fiber-reinforced polymers (C-Flex), have been designed and manufactured. The fiber-reinforced disc was made of polyurethane end-plates with A100 hardness, a homogeneous nucleus with A40, and 12 layers of multidirectional (0, +45 degrees), fiber-reinforced annulus with A40 polyurethane. The design and modeling of the multicomponent polymers (non-fiber-reinforced) was made of C-Flex endplates with A90 hardness, a nucleus with A35 occupying 35% of the volume, and an annulus with 70A.

Mechanical testing of these disc prostheses demonstrated similar mechanical properties to those of natural, normal discs.

L5 ANSWER 21 OF 28 MEDLINE
AN 91227993 MEDLINE
DN 91227993
T1 Anterior plating in thoracolumbar spine injuries. Indication, technique, and results.
AU Haas N, Blaich M, Tschene H
CS Trauma Department, Hannover Medical School, Germany.
SO SPINE. (1991 Mar) 16 (3 Suppl) S100-11.
Journal code: UXX. ISSN: 0362-2436.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199108
AB The selection of surgical approach for patients suffering from acute thoracolumbar spinal trauma is presently imbued with great controversy.
The surgical method chosen depends on the type of fracture, anatomic and biomechanical factors, and the habits and experience of the surgeon involved. Due to new techniques for the posterior approach and the use of internal fixators, the indications for the anterior approach must be reassessed. The primary indication for anterior decompression and grating is narrowing of the spinal canal with neurologic deficits that cannot be resolved by any other approach. Additional indications are seen in patients with vertebral body fractures with complete comminution and dislocation, noncorrectable burst fractures, and late misalignments. After removal of vertebral body and ***intervertebral*** ***disc*** fragments, autogenous bone should preferably be used for interposition. Different plates can be used for instrumentation. While anterior

plates most often offer complete stability for the thoracic spine and a dorsal plating in this region can turn out to be quite difficult, in the lumbar spine, especially with destruction of additional posterior structures, one must think of subsequent surgical intervention for increased stability and compressive posterior fusion with short-armed internal fixators. So far,

we have gained experience from ***treating*** 39 patients with anterior decompression and stabilization. One of 19 patients with Frankel Grades A and B and 50% of the remaining 20 patients had improved one Frankel grade. Only a few of the patients with incomplete neurologic symptoms had back pain. All except for one returned to work. According to radiologic examinations, the average loss of correction amounted to 7%.

L5 ANSWER 22 OF 28 MEDLINE
AN 90069745 MEDLINE
DN 90069745
T1 Biomechanical evaluation of cervical spinal stabilization methods in a ***human*** cadaveric model.
AU Coe J D, Warden K E, Sutterlin C E 3d, McAfee P C
CS Department of Orthopaedic Surgery, Union Memorial Hospital, Baltimore, Maryland.
NC AB38489 (NIAAS)
SO SPINE. (1989 Oct) 14 (10) 1122-31.
Journal code: UXX. ISSN: 0362-2436.

CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199003
AB The authors have previously reported in vitro testing of various posterior and anterior constructs (sublaminar, Rogers' and Bohlman's triple-wire wiring, AO hook plate fixation, and Caspar anterior plate fixation) in a bovine model with multiaxial biomechanical testing. This study was undertaken to evaluate the above constructs and other constructs in ***human*** cadaveric spines. Six subaxial ***human*** cervical spine specimens were biomechanically tested at the C5-C6 motion segment both intact and with a simulated distractive-flexion Stage 3 injury created at the C5-C6 level with complete disruption of the supraspinous ligament, interspinous ligament, ligamentum flavum, posterior

longitudinal ligament, and facet joint capsules, with sufficient disruption of the ***intervertebral*** **disc*** to allow a bilateral CS-C6 facet dislocation. The specimens were tested with a six-channel Bionix MTS 838 materials tester (M.T.S., Minneapolis, Minnesota) using cyclic loads to simulate cervical compression, flexion, extension, and rotation with measurements of axial load, axial displacement, torque, rotation, and anterior and posterior strains. Eight constructs were tested nondeductively: the intact spinal segment, sublamina wiring, Rogers' wiring, Bohlman's wiring method (triple-wire technique), Roy-Camille posterior plate fixation, AO posterior hook-plate fixation, Caspar anterior plate fixation, and AO posterior hook-plate with Caspar plate fixation. There was no significant difference in flexural stiffness and torsional stiffness between any of the constructs tested; however, there was a significant (P less than 0.05) increase in the posterior strain during flexion and axial loading tests between the Caspar construct and all other tested constructs, including the combined posterior and anterior plating construct. These differences persisted after cyclic testing of 100 cycles. Biomechanical testing demonstrated no significant differences between any of the posterior stabilization methods tested. Caspar anterior plating is clearly an inferior method of ***treating*** distracting flexion injuries of the cervical spine when compared with all posterior fixation techniques. Also, there is little biomechanical justification for the use of potentially dangerous sublamina wire fixation and posterior plating methods in these injuries (with intact bony posterior elements), since the relatively safe interspinous wiring methods (Rogers' and Bohlman) are just as rigid as these other posterior fixation techniques.

L5 ANSWER 23 OF 28 MEDLINE
AN 85105115 MEDLINE
DN 85105115
T1 Anterior decompression of traumatic thoracolumbar fractures with incomplete neurological deficit using a retroperitoneal approach.
AU McAfee P C, Bohlman H H, Yuan H A
SO JOURNAL OF BONE AND JOINT SURGERY. AMERICAN VOLUME. (1985 Jan) 67 (1)
89-104.
Journal code: HJR. ISSN: 0021-9355.
CY United States
DT Journal; Article. (JOURNAL ARTICLE)
LA English

FS Abridged Index Medicus Journals; Priority Journals
EM 198305
AB Between 1973 and 1981, seventy patients with a spinal cord injury secondary to a thoracolumbar fracture were ***treated*** by anterior spinal-canal decompression through a retroperitoneal approach. All of these patients had an incomplete neurological deficit caused by retropulsed vertebral-body fragments and ***intervertebral*** **disc*** material in the spinal canal. Forty-eight patients have been followed for an average of 3.4 years (range: two to 8.6 years). Either computed tomography or lateral tomography, or both, was performed after surgery on these forty-eight patients, and confirmed the successful removal of the cause of compression in all of them. No patient lost further cord or cauda equina function after the anterior decompression. Thirty-seven of the forty-two patients who had a motor deficit improved by at least one class in motor strength. Fourteen of the thirty patients whose quadriceps and hamstrings were too weak to permit walking regained full independent walking ability. Twelve of the thirty-two patients who had a conus medullaris injury demonstrated neurogenic bowel and bladder recovery. The degree of neurological recovery of spinal cord injury after anterior spinal decompression of thoracolumbar fractures appears more favorable than after other, previously reported techniques that do not decompress the spinal canal.

L5 ANSWER 24 OF 28 MEDLINE
AN 84096662 MEDLINE
DN 84096662
T1 [Technique of lumbosacral graft in the surgical ***treatment*** of dysplastic spondylolisthesis]
Technique de la greffe trans-sacro-lombaire dans le traitement chirurgical du spondylolisthésis dysplasique.
AU Passio B
SO REVUE DE CHIRURGIE ORTHOPÉDIQUE ET REPARATRICE DE L'APPAREIL MOTEUR. (1983) 69 (7) 573-5.
Journal code: RMP. ISSN: 0035-1040.
CY France
DT Journal; Article. (JOURNAL ARTICLE)
LA French
FS Priority Journals
EM 198404
AB The authors describe a method of ***treatment*** for

spondylolisthesis using a posterior approach, reduction and fixation with Harrington rods and cortical fibular graft driven through the sacrum, across the lumbosacral ***intervertebral*** **disc*** into the body of the 5th lumbar vertebra. The technique is completed by a posterolateral graft. This technique avoids the need for an anterior approach.

L5 ANSWER 25 OF 28 MEDLINE
AN 83249474 MEDLINE
DN 83249474
T1 Anterior ***intervertebral*** **disc*** excision and bone grafting in cervical spondylotic myelopathy.
AU Zhang Z H, Yin H, Yang K, Zhang T, Dong F, Dang G, Lou S Q, Cai Q
SO SPINE. (1983 Jan-Feb) 8 (1) 16-9.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal; Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198310
AB An analysis of 121 cases of cervical spondylotic myelopathy ***treated*** by anterior excision of the disc and fusion was undertaken. All patients were followed at least six months, and follow-up averaged 22 months. Results showed that 97.5% of patients had no aggravation of symptoms, 90.9% were improved, and 72.6% were able to resume normal activity. Surgical intervention can greatly improve the prospects of patients with severe cervical spondylotic myelopathy, and its use should not be lightly ruled out. Autografts yield higher fusion rates and better overall results than homologs. Selection of the number and level of discs to be excised depends upon clinical and roentgenographic indications, as well as the myelogram and the amount of fluid injected into the discs.

L5 ANSWER 26 OF 28 MEDLINE
AN 78247268 MEDLINE
DN 78247268
T1 A technical modification of Cloward's posterior lumbar interbody fusion.
AU Lin P M
SO NEUROSURGERY. (1977 Sep-Oct) 1 (2) 118-24.
Journal code: NZL. ISSN: 0148-396X.
CY United States
DT Journal; Article. (JOURNAL ARTICLE)
LA English

FS Priority Journals
EM 197812

AB The concept of interbody (intercorporeal) fusion as a useful
treatment for ***intervertebral*** ***disc***
disease in
the cervical area has been well received. Thirty-two years have
passed
since Cloward first introduced his technique of posterior lumbar
intervertebral fusion. The author believes that the delayed
acceptance of
this procedure is due to fear of technical difficulties. A technical
modification of Cloward's posterior lumbar interbody fusion is
introduced.
It entails better technique in controlling epidural bleeding by
careful
positioning of the patient and the use of oxidized cellulose as a
tampon
in the epidural space. The integrity of the facet is preserved through
a
more limited interlaminar approach. Osteosynthesis of the graft is
assured by multiple perforations of the cortical plate in accordance
with
Robinson's principle utilized in cervical interbody fusion. The
author
believes that the modification simplifies the Cloward posterior
lumbar
interbody fusion. It also assures better stability after surgery by
retention of the facet and lessening the dangers of settlement of the
graft by preservation of the cortical plate. In a series of 75 cases,
tomograms made 4 months after operation have shown a viable
graft with
active osteosynthesis between the graft and the adjoining vertebral
bodies
in 94%.

L5 ANSWER 27 OF 28 MEDLINE
AN 78204506 MEDLINE
DN 78204506
T1 Fracture dislocation of the cervical spine. Value of anterior
approach
with bovine bone interbody fusion.
AU Goran A, Murthy K K
SO SPINE. (1978 Jun) 3 (2) 95-102.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 197810
AB Twenty surgically ***treated*** cases of fracture dislocation
of the
cervical spine are presented. All patients had hyperflexion injuries
with
associated rupture of the ***intervertebral*** ***disc***
All
patients were operated on through an anterior surgical approach.
Ten

consecutive patients had interbody fusion with autogenous bone
and ten
consecutive patients were fused anteriorly with bovine (Kiel) bone.
All
patients' injuries fused satisfactorily. There was no significant
difference between the use of autogenous bone and bovine bone.

L5 ANSWER 28 OF 28 MEDLINE
AN 75134887 MEDLINE
DN 75134887
T1 Intervertebral bone ***implants*** following excision of
protruded
lumbar discs
AU Christoferson L A, Seland B
SO JOURNAL OF NEUROSURGERY. (1975 Apr) 42 (4) 401-5.
Journal code: JI3. ISSN: 0022-3085.
CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 197508
AB The authors describe a technique whereby a portion of the lamina
removed
during exposure of an intervertebral lumbar disc protrusion is
implanted in the ***intervertebral*** ***disc***
space
following disc excision. An analysis of 456 consecutive cases
operated on
by this technique and followed from 1 to 10 years is presented. Of
the 418
patients followed, 92 per cent indicated they were able to return to
their
normal activities and were satisfied with the result. Thirty percent
of
the patients indicated they had required some conservative
treatment for recurrent episodes of back or leg pain. Ten
patients
had subsequent back surgery; only one ***implant*** has
dislocated.

=> s intervertebral disc cell#ab:bi
14933 INTERVERTBRAL/BI
26941 DISC/BI
1872652 CELL/BI
5401617 AB/FA
22 INTERVERTBRAL DISC CELL/BI
(INTERVERTBRAL(V)DISC(W)CELL#)BI (L)
AB/FA)
14933 INTERVERTBRAL/BI
26941 DISC/BI
1872652 CELL/BI
24 INTERVERTBRAL DISC CELL/BI
(INTERVERTBRAL(V)DISC(W)CELL#)BI
24 INTERVERTBRAL DISC CELL/AB:BI
L6

=> s l6 and implant#ab:bi
129989 IMPLANT#BI
5401617 AB/FA
84121 IMPLANT#AB
(IMPLANT#BI (L) AB/FA)
129989 IMPLANT#BI
L7 0 L6 AND IMPLANT#AB:BI
=> s l6 and model#ab:bi
639631 MODEL#BI
5401617 AB/FA
378081 MODEL#AB
(MODEL#BI (L) AB/FA)
639631 MODEL#BI
L8 5 L6 AND MODEL#AB:BI
=> d l - bib ab
YOU HAVE REQUESTED DATA FROM 5 ANSWERS -
CONTINUE? Y(N)Y

L8 ANSWER 1 OF 5 MEDLINE
AN 2000389628 MEDLINE
DN 20309886
T1 ***Intervertebral*** ***disc*** ***cell*** death is
dependent
on the magnitude and duration of spinal loading.
AU Lortz J C, Chin J R
CS Orthopaedic Bioengineering Laboratory, Department of
Orthopaedic Surgery,
University of California, San Francisco 94143-0514, USA.
jloz@uclsa.usf.edu
NC AR46173 (NIAAMS)
SO SPINE. (2000 Jun 15) 25 (12) 1477-83.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200010
EW 20001002
AB STUDY DESIGN: An in vivo study of the toxic consequences of
static
compressive stress on the intervertebral disc. OBJECTIVES: To
determine
whether disc cell death is correlated with the magnitude and
duration of
spinal compressive loading. SUMMARY OF BACKGROUND
DATA: Static compression
in vivo has been demonstrated to induce cell death. Cell death, in
turn,
has been associated with disc degeneration in humans. There are
currently
no tolerance criteria for the intervertebral disc that combine both

biomechanical and biologic factors, although both have been implicated in cases of accelerated degeneration. METHODS: Mouse tail discs were loaded in vivo with an external compression device. Compressive stress was applied at one of two magnitudes (0.4 and 0.8 MPa) for 7 days, and at one additional magnitude (1.3 MPa) for 1, 3, and 7 days. Midsagittal sections of the discs were stained for apoptosis using the TdT-dUTP terminal nick-end labeling (TUNEL) reaction. Quantal analysis was used to correlate the extent of cell death to the magnitude and duration of loading. RESULTS: The probit transformation of the percentage of dying cells was proportional to the sum of the logarithmic transformations of the compressive stress and the time of loading. CONCLUSIONS: The results of this study demonstrate the feasibility of developing a quantitative correlation between spinal loading and disc degeneration. Such a correlation may be coupled in the future to existing engineering models that predict spinal loading in response to physical exposures and lead to improved definition of the bounds of healthy and unhealthy spinal loading, and ultimately, refined guidelines for low back safety.

L8 ANSWER 2 OF 5 MEDLINE
AN 2000091735 MEDLINE
DN 20091735
TI Viscelastic properties of ***intervertebral*** ***disc***
cells. Identification of two biomechanically distinct cell populations.
AU Guizak F, Ting-Beall H P, Baer A E, Trickey W R, Erickson G R, Setton L A
CS Department of Surgery, Duke University Medical Center, Durham, North Carolina, USA
NC AR43876 (NIAMS)
AGI 5768 (NIA)
SO SPINE. (1999 Dec 1) 24 (23) 2475-83.
Journal code: UXX. ISSN: 0362-2436
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 200004
AB STUDY DESIGN: A combined experimental and theoretical biomechanical study to quantify the mechanical properties of living cells of the porcine intervertebral disc. OBJECTIVES: To quantify zonal variations in the mechanical properties and morphology of cells isolated from the

intervertebral disc. SUMMARY OF BACKGROUND DATA: Cellular response to mechanical stimuli is influenced by the mechanical properties of cells and of the extracellular matrix. Significant zonal variations in intervertebral disc matrix properties have been reported. No information is currently available on the corresponding regional variations in the mechanical properties of ***intervertebral*** ***disc*** ***cells***, despite evidence of significant differences in cellular phenotype and biologic response to loading. METHODS: The micropipette aspiration test was used in combination with a three-parameter viscoelastic solid model to measure the mechanical properties of cells isolated from the annulus fibrosus, transition zone, and nucleus pulposus. RESULTS: ***intervertebral*** ***disc*** ***cells*** exhibited viscoelastic solid behaviors. Highly significant differences were observed in the morphology, cytoskeletal arrangement, and biomechanical properties of the nucleus pulposus cells as compared with annulus fibrosus or transition zone cells. Cells of the nucleus pulposus were approximately three times stiffer and significantly more viscous than cells of the annulus fibrosus or transition zone. CONCLUSIONS: The findings of this study provide new evidence for the existence of two biomechanically distinct cell populations in the intervertebral disc. These differences in mechanical behavior may be related to observed differences in the cytoskeletal architecture between these cells, and may further play an important role in the development, maintenance, and degeneration of the intervertebral disc.

L8 ANSWER 3 OF 5 MEDLINE
AN 1999164907 MEDLINE
DN 99164907
TI Cyclic mechanical stretch stress increases the growth rate and collagen synthesis of nucleus pulposus cells in vitro.
AU Masumoto T, Kawakami M, Kuribayashi K, Takenaka T, Tamaki T
CS Department of Orthopedic Surgery, Wakayama Medical College, Japan.
lae@wakayama-med.ac.jp
SO SPINE. (1999 Feb 15) 24 (4) 315-9
Journal code: UXX. ISSN: 0362-2436
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199907

EW 19990701
AB STUDY DESIGN: A rabbit model designed to investigate the effects of applied cyclic tensile stress on the cell division rate and the collagen synthesis in the rabbit nucleus pulposus cells in vitro. OBJECTIVE: To evaluate the effects of mechanical stress on nucleus pulposus cells, thus adding to the understanding of the adaptation of the intervertebral disc to mechanical stress. SUMMARY OF BACKGROUND DATA: ***Intervertebral*** ***disc*** ***cells*** in vivo are exposed to a multitude of physical forces during physical motion. Although it is known that in intervertebral disc disease, a common pathway of disc degeneration is mechanical stress on the nucleus pulposus or the annulus fibrosus or both, the underlying mechanism has been less well defined. METHODS: Nucleus pulposus cells were isolated from 4-week-old Japanese white rabbits. These cells were subjected to the mechanical cyclic stretch stress using a computerized, pressure-operated instrument that physically deformed the cells. The DNA synthesis rate, collagen synthesis rate, and cell cycle progression were measured. RESULTS: Cyclic tensile stretch increased the DNA synthesis rate in nucleus pulposus cells and in the population of cells in the S phase of the cell cycle during 1 to 2 days of subjugation to stress. Cyclic tensile stretch also increased collagenous protein synthesis in nucleus pulposus cells during 1 to 4 days of stress. CONCLUSIONS: Mechanical stress on nucleus pulposus cells promotes the proliferation of cells and alters the properties of ***intervertebral*** ***disc*** ***cells***. This study may reflect the adaptation of the intervertebral disc to increased motion and stress.

L8 ANSWER 4 OF 5 MEDLINE
AN 1998018417 MEDLINE
DN 98018417
TI Type-II collagen gene expression is transiently upregulated in experimentally induced degeneration of rabbit intervertebral disc.
AU Takaishi H, Nemoto O, Shinia N, Kikuchi T, Yamada H, Yamagishi M, Yabe Y
CS Department of Orthopedic Surgery, National Defense Medical College, Keio University School of Medicine, Tokyo, Japan.

SO JOURNAL OF ORTHOPAEDIC RESEARCH (1997 Jul) 15 (4)
528-38.

Journal code: JIQ ISSN: 0736-0266.

CY United States

DT Journal Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199801

EW 19980104

AB To clarify phenotypic alterations of ***intervertebral***
disc

cells during the repair process, we cloned partial type-II
collagen cDNA from rabbits and analyzed the level of expression
of type-II

collagen mRNA in disc degeneration. An animal ***model***
was created

by surgical denudation of rabbit intervertebral discs through an
extrapleural approach. Eight animals each from an experimental
and a

control group were killed at 2, 4, 8, or 16 weeks postoperatively,
and the

disc samples were used for this study. Round chondrocyte-like cells
that

filled the herniated space showed intense signal of type-II collagen
mRNA

and significant pericellular immunostaining of type-II collagen but
no

clear staining of type-I collagen. Northern blot analysis revealed
that

the expression of type-II collagen mRNA of the repair disc cells
was

transiently increased at 4 weeks postoperatively. The cells were
able to

change their morphology in response to mechanical stimulation by
surgical

denudation and to induce a significant increase in the gene
expression

of type-II collagen at an early phase of disc degeneration. The
present

results indicate the transient enhancement of repair activity in the
degenerative process of injured fibrocartilage.

L8 ANSWER 5 OF 5 MEDLINE

AN 96093339

DN 96093339 MEDLINE

TI Distribution of the basic fibroblast growth factor and its receptor
gene

expression in normal and degenerated rat intervertebral discs.

AU Nagano T, Yonenobu K, Miyamoto S, Tohyama M, Ono K,

CS Department of Orthopaedic Surgery, Osaka University Medical

School, Japan.

SO SPINE. (1995 Sep 15) 20 (18) 1972-8

Journal code: UXX ISSN: 0362-2436.

CY United States

DT Journal Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199605

AB STUDY DESIGN: Using a rat spondylolysis ***model***, the
distributions

of cells expressing the basic fibroblast growth factor and its receptor
were investigated in normal and degenerated intervertebral discs.

Cell-proliferating activity in degenerated discs was also assessed
OBJECTIVES: This study was conducted to determine whether

basic fibroblast
growth factor is related to intervertebral disc degeneration.

SUMMARY OF
BACKGROUND DATA: Basic fibroblast growth factor stimulates

proliferation
and matrix synthesis of cultured ***intervertebral***
disc

cells. METHODS: Immunohistochemistry and in situ
hybridization

histochemistry were conducted to detect cells with basic fibroblast
growth

factor-like immunoreactivity and fibroblast growth factor receptor
messenger RNA, respectively. Cell-proliferating activity was

evaluated by
AgNOR staining RESULTS: In degenerated discs, round

chondrocytes with
basic fibroblast growth factor-like immunoreactivity and fibroblast

growth
factor receptor messenger RNA were scattered instead of

spindle-shaped
cells in the normal annulus (normal annular cells), which are devoid

of
basic fibroblast growth factor-like immunoreactivity and fibroblast

growth
factor receptor messenger RNA. The proliferating activity of these

chondrocytes is suggested to exceed that of normal annular cells.

CONCLUSION: Basic fibroblast growth factor is suggested to
promote

proliferation of chondrocytes in degenerated discs in an autocrine or
paracrine manner. Basic fibroblast growth factor may be related to

intervertebral disc degeneration as a proliferation-stimulating factor
of

chondrocytes that replace normal annular cells during disc
degeneration.

=> s 18

=> s 18

2 FILES SEARCHED..

'AB IS NOT A VALID FIELD CODE

L9 18 L8

=> dup term l9

PROCESSING COMPLETED FOR L9

L10 8 DUP REM L9 (10 DUPLICATES REMOVED)

=> d 1 - bib ab

YOU HAVE REQUESTED DATA FROM 8 ANSWERS -

CONTINUE? Y(N)Y

L10 ANSWER 1 OF 8 MEDLINE DUPLICATE 1

AN 2000389628 MEDLINE

DN 20309886

TI ***Intervertebral*** ***disc*** ***cell*** death is
dependent

on the magnitude and duration of spinal loading

AU Lotz J C, Chin J R

CS Orthopaedic Bioengineering Laboratory, Department of
Orthopaedic Surgery,

University of California, San Francisco 94143-0514, USA.

jitoe@jusa.ucsf.edu

NC AR46173 (NIA/MS)

SO SPINE. (2000 Jun 15) 25 (12) 1477-83.

Journal code: UXX ISSN: 0362-2436.

CY United States

DT Journal Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200010

EW 20001002

AB STUDY DESIGN: An in vivo study of the toxic consequences of
static

compressive stress on the intervertebral disc. OBJECTIVES: To
determine

whether disc cell death is correlated with the magnitude and
duration of

spinal compressive loading. SUMMARY OF BACKGROUND
DATA: Static compression

in vivo has been demonstrated to induce cell death. Cell death, in
turn,

has been associated with disc degeneration in humans. There are
currently

no tolerance criteria for the intervertebral disc that combine both
biomechanical and biologic factors, although both have been

implicated in
cases of accelerated degeneration. METHODS: Mouse tail discs

were loaded
in vivo with an external compression device. Compressive stress

was
applied at one of two magnitudes (0.4 and 0.8 MPa) for 7 days, and

at one
additional magnitude (1.3 MPa) for 1, 3, and 7 days. Midsegmental

sections
of the discs were stained for apoptosis using the TdT-dUTP

terminal
nick-end labelling (TUNEL) reaction. Quantal analysis was used to

correlate
the extent of cell death to the magnitude and duration of loading.

RESULTS: The probit transformation of the percentage of dying
cells was

proportional to the sum of the logarithmic transformations of the
compressive stress and the time of loading. CONCLUSIONS: The

results of
this study demonstrate the feasibility of developing a quantitative

correlation between spinal loading and disc degeneration. Such a correlation may be coupled in the future to existing engineering ***models*** that predict spinal loading in response to physical exposures and lead to improved definition of the bounds of healthy and unhealthy spinal loading, and ultimately, refined guidelines for low back safety.

L10 ANSWER 2 OF 8 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.
AN 20000263727 EMBASE

T1 The micromechanical environment of ***intervertebral***
disc
cells : Effect of matrix anisotropy and cell geometry predicted by a linear ***model***

AU Baer A.E., Setton L.A.
CS A.E. Baer, Department of Biomedical Engineering, Duke University, Durham, NC 27708, United States
SO Journal of Biomechanical Engineering (2000) 122/3 (245-251)
Ref: 54

ISSN: 0148-0731 CODEN: JBENDY

CY United States
DT Journal, Article
FS 027 Biophysics, Bioengineering and Medical Instrumentation
LA English
SL English
AB Cells of the intervertebral disc exhibit spatial variations in phenotype and morphology that may be related to differences in their local mechanical environments. In this study, the stresses, strains, and dilatations in and around cells of the intervertebral disc were studied with an analytical ***model*** of the cell as a mechanical inclusion embedded in a transversely isotropic matrix. In response to tensile loading of the matrix, the local mechanical environment of the cell differed among the anatomic regions of the disc and was strongly influenced by changes in both matrix anisotropy and parameters of cell geometry. The results of this study suggest that the local cellular mechanical environment may play a role in determining both cell morphology in situ and the inhomogeneous response to mechanical loading observed in cells of the disc.

L10 ANSWER 3 OF 8 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.
AN 2000057640 EMBASE
T1 Changes with age in proteoglycan synthesis in cells cultured in vitro from the inner and outer rabbit annulus fibrosus: Responses to interleukin-1 and interleukin-1 receptor antagonist protein

AU Maeda S., Kokubun S.
CS Dr. S. Maeda, Department of Orthopaedic Surgery, Tohoku University School of Medicine, Sendai 980-8574, Japan.
s-maeda@mail.cc.tohoku.ac.jp
SO Spine (15 Jan 2000) 25/2 (166-169)
Ref: 25

ISSN: 0362-2436 CODEN: SPINDD

CY United States
DT Journal, Article
FS 033 Orthopedic Surgery
LA English
SL English
AB Study Design: Proteoglycan synthesis was examined in cells isolated from the inner and outer annulus fibrosus of young and old rabbits. Their responses to interleukin-1, alpha, and interleukin-1 receptor antagonist protein were investigated. Objectives: To evaluate the age-related changes and the anatomically related differences in the function of ***intervertebral*** ***disc*** ***cells***. Summary

of Background Data: Proteoglycan content in the human intervertebral disc decreases with age. Age-related changes in ***intervertebral*** ***disc*** ***cells*** function, however, have not been fully investigated. Methods: Japanese white rabbits aged 2 months (young group) and 3 years (old group) were used. The inner and outer layer of the annulus fibrosus were separated. The proteoglycan synthesis and release were measured in cells cultured with or without human recombinant interleukin-1, alpha, and interleukin-1 receptor antagonist protein.

Results: The proteoglycan synthesis significantly decreased and the release rate significantly increased in the old rabbits, compared with the young ones. In the inner annulus, the inhibition of proteoglycan synthesis due to interleukin-1, alpha, was greater in the old rabbits than in the young ones. In the old rabbits, interleukin-1-induced inhibition was more pronounced in the inner annulus than in the outer annulus. Interleukin-1 receptor antagonist protein suppressed inhibition of proteoglycan synthesis by interleukin-1, alpha, in the two layers in both age groups. Conclusions: Both the decline in proteoglycan synthesis and the increased cell sensitivity to interleukin-1, alpha, with age may contribute to the degradation of discs. The increase in cell response to interleukin-1, alpha, in the inner annulus of rabbits may explain why the inner annulus and nucleus pulposus degrade earlier than the outer annulus and nucleus pulposus.

annulus in human discs. Interleukin-1 receptor antagonist protein could be useful in inhibiting the degradation of the disc.

L10 ANSWER 4 OF 8 MEDLINE
AN 2000091755 MEDLINE
DN 20091755

T1 Viscoelastic properties of ***intervertebral*** ***disc*** ***cells***. Identification of two biomechanically distinct cell populations.

AU Guilak F., Ting-Bell H.P., Baer A.E., Trickey W.R., Erickson G.R., Setton L.A.
CS Department of Surgery, Duke University Medical Center, Durham, North Carolina, USA.
NC AR43876 (NIAMS)
AG15768 (NIA)

SO SPINE (1999 Dec 1) 24 (23) 2475-83.
Journal code: UXX. ISSN: 0362-2436.

CY United States
DT Journal, Article: (JOURNAL ARTICLE)

LA English
FS Priority Journals
EM 200004

EW 20000403

AB STUDY DESIGN: A combined experimental and theoretical biomechanical study to quantify the mechanical properties of living cells of the porcine intervertebral disc. OBJECTIVES: To quantify zonal variations in the mechanical properties and morphology of cells isolated from the intervertebral disc. SUMMARY OF BACKGROUND DATA:

Cellular response to mechanical stimuli is influenced by the mechanical properties of cells and of the extracellular matrix. Significant zonal variations in intervertebral disc matrix properties have been reported. No information is currently available on the corresponding regional variations in the mechanical properties of ***intervertebral*** ***disc*** ***cells***, despite evidence of significant differences in cellular phenotype and biologic response to loading. METHODS: The micropipette aspiration test was used in combination with a three-parameter viscoelastic solid ***model*** to measure the mechanical properties of cells isolated from the annulus fibrosus, transition zone, and nucleus pulposus. RESULTS: ***intervertebral*** ***disc*** ***cells*** exhibited viscoelastic solid behaviors. Highly significant differences were observed in the morphology, cytoskeletal arrangement, and biomechanical properties of the nucleus pulposus cells as compared with annulus fibrosus or transition zone cells. Cells of the nucleus

pulposus were approximately three times stiffer and significantly more viscous than cells of the annulus fibrosus or transition zone. CONCLUSIONS: The findings of this study provide new evidence for the existence of two biomechanically distinct cell populations in the intervertebral disc. These differences in mechanical behavior may be related to observed differences in the cytoskeletal architecture between these cells, and may further play an important role in the development, maintenance, and degeneration of the intervertebral disc.

L10 ANSWER 5 OF 8 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1999 430112 BIOSIS
DN PREV199900430112
TI The effect of hydrostatic pressure on intervertebral disc metabolism.
AU Hutton, William C. (1), Elmer, William A.; Boden, Scott D.; Hyon, Steven.
Torshbakke, Yessamine; Tonia, Katsuro; Hair, Gregory A.
CS (1) Emory Spine Center, 2165 North Decatur Road, Decatur, GA, 30033 USA
SO Spine, (Aug. 1, 1999) Vol. 24, No. 15, pp. 1507-1515.
ISSN: 0362-2436.

DT Article
LA English
SL English
AB Study Design: By the use of pressure vessels, hydrostatic pressure was applied to ***intervertebral*** ***disc*** ***cells*** cultured in an alginate. Objective: To test the hypothesis that hydrostatic pressure directly affects the synthesis of collagen and proteoglycan by the ***intervertebral*** ***disc*** ***cells***.

Summary of Background Data: The influence of compression (both hydrostatic and mechanical) on chondrocyte metabolism was examined in a number of earlier studies. However, in most of these studies, articular cartilage, not intervertebral disc, was used, and in none of these was hydrostatic pressure applied to ***intervertebral*** ***disc*** ***cells***. ***disc*** cultured in alginate. Methods: Fresh cells were harvested from the lumbar intervertebral discs of dogs. Before their suspension in an alginate gel system, the cells were plated and expanded until they reached confluence. Then, by use of the alginate gel system, the cells were exposed (for up to 9 days) to specific values of hydrostatic pressure inside two stainless steel pressure vessels. One vessel was kept at 1

MPa and the other at atmospheric pressure. The effects of 1 MPa were compared against atmospheric pressure by measuring the incorporation of (3H)-proline and (35S)-sulfate into collagen and proteoglycans, respectively, for the annulus cells and nucleus cells separately, and by determining whether this incorporation was reflected by changes in the levels of mRNA for aggrecan and Types I and II collagen. Results: Comparisons with atmospheric pressure yielded the following findings: 1) In the incorporation studies, the nucleus and annulus cells exhibited a differential response to a hydrostatic pressure of 1 MPa. Collagen and proteoglycan syntheses were stimulated in the nucleus cells and inhibited in the annulus cells. 2) There was no significant increase in cell proliferation, as measured by DNA content, at 1 MPa for either the annulus or nucleus cells. 3) The mRNA levels of collagen (Col 1A1 and Col 2A1) and aggrecan increased at 1 MPa in both the nucleus and annulus cells. Conclusions: Hydrostatic pressure directly affects the synthesis of collagen and proteoglycan by the ***intervertebral*** ***disc*** ***cells***.

L10 ANSWER 6 OF 8 MEDLINE
AN 1999 164907 MEDLINE
DN 99164907
TI Cyclic mechanical stretch stress increases the growth rate and collagen synthesis of nucleus pulposus cells in vitro.
AU Matsumoto T, Kawakami M, Kuribayashi K, Takenaka T, Tanaka T
CS Department of Orthopedic Surgery, Wakayama Medical College, Japan.
tae@wakayama-med.ac.jp
SO SPINE, (1999 Feb 15) 24 (4) 315-9.
Journal code: UXX ISSN: 0362-2436.
CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199907
EW 19990701
AB STUDY DESIGN: A rabbit ***model*** designed to investigate the effects of applied cyclic tensile stress on the cell division rate and the collagen synthesis in the rabbit nucleus pulposus cells in vitro
OBJECTIVE: To evaluate the effects of mechanical stress on nucleus pulposus cells, thus adding to the understanding of the adaptation of the intervertebral disc to mechanical stress. STUDY MARK Y OF

BACKGROUND DATA: ***Intervertebral*** ***disc*** ***cells*** in vivo are exposed to a multitude of physical forces during physical motion. Although it is known that in intervertebral disc disease, a common pathway of disc degeneration is mechanical stress on the nucleus pulposus or the annulus fibrosus or both, the underlying mechanism has been less well defined. METHODS: Nucleus pulposus cells were isolated from 4-week-old Japanese white rabbits. These cells were subjected to the mechanical cyclic stretch stress using a computerized, pressure-operated instrument that physically deformed the cells. The DNA synthesis rate, collagen synthesis rate, and cell cycle progression were measured RESULTS: Cyclic tensile stretch increased the DNA synthesis rate in nucleus pulposus cells and in the population of cells in the S phase of the cell cycle during 1 to 2 days of subjugation to stress. Cyclic tensile stretch also increased collagenous protein synthesis in nucleus pulposus cells during 1 to 4 days of stress. CONCLUSIONS: Mechanical stress on nucleus pulposus cells promotes the proliferation of cells and alters the properties of ***intervertebral*** ***disc*** ***cells***. This study may reflect the adaptation of the intervertebral disc to increased motion and stress.

L10 ANSWER 7 OF 8 MEDLINE
AN 1998018417 MEDLINE
DN 98018417
TI Type-II collagen gene expression is transiently upregulated in experimentally induced degeneration of rabbit intervertebral disc.
AU Takashi H; Nemoto O; Shinoh M; Kikuchi T; Yamada H; Yamaguchi M; Yabe Y
CS Department of Orthopedic Surgery, National Defense Medical College, Keio University School of Medicine, Tokyo, Japan.
SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1997 Jul) 15 (4) 528-38.
Journal code: JIQ ISSN: 0736-0266
CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199801
EW 19980104
AB To clarify phenotypic alterations of ***intervertebral***

disc

cells during the repair process, we cloned partial type-II collagen cDNA from rabbits and analyzed the level of expression of type-II collagen mRNA in disc degeneration. An animal ***model*** was created by surgical denudation of rabbit intervertebral discs through an extrapleural approach. Eight animals each from an experimental and a control group were killed at 2, 4, 8, or 16 weeks postoperatively, and the disc samples were used for this study. Round chondrocyte-like cells filled the herniated space showed intense signal of type-II collagen mRNA and significant pericellular immunostaining of type-II collagen but no clear staining of type-I collagen. Northern blot analysis revealed that the expression of type-II collagen mRNA of the repair disc cells was transiently increased at 4 weeks postoperatively. The cells were able to change their morphology in response to mechanical stimulation by surgical denudation and to induce a significant increase in the gene expression of type-II collagen at an early phase of disc degeneration. The results indicate the transient enhancement of repair activity in the degenerative process of injured fibrocartilage.

L10 ANSWER 8 OF 8 MEDLINE

DUPLICATE 5

AN 96093339 MEDLINE
DN 96093339

TI Distribution of the basic fibroblast growth factor and its receptor gene expression in normal and degenerated rat intervertebral discs.

AU Negano T, Yonemitsu K, Miyamoto S, Tohyama M, Ono K

CS Department of Orthopaedic Surgery, Osaka University Medical School, Japan.

SO SPINE. (1995 Sep 15) 20 (18) 1972-8.

Journal code: UXX ISSN: 0362-2436

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EN 199605

AB STUDY DESIGN: Using a rat spondylosis ***model***, the distributions of cells expressing the basic fibroblast growth factor and its receptor

were investigated in normal and degenerated intervertebral discs. Cell-proliferating activity in degenerated discs was also assessed

OBJECTIVES: This study was conducted to determine whether basic fibroblast

growth factor is related to intervertebral disc degeneration.

SUMMARY OF

BACKGROUND DATA: Basic fibroblast growth factor stimulates proliferation and matrix synthesis of cultured ***intervertebral***

disc

cells. METHODS: Immunohistochemistry and in situ hybridization

histochemistry were conducted to detect cells with basic fibroblast growth

factor-like immunoreactivity and fibroblast growth factor receptor messenger RNA, respectively. Cell-proliferating activity was

evaluated by AgNOR staining. RESULTS: In degenerated discs, round chondrocytes with

basic fibroblast growth factor-like immunoreactivity and fibroblast growth factor receptor messenger RNA are scattered instead of spindle-shaped

cells in the normal annulus (normal annular cells), which are devoid of basic fibroblast growth factor-like immunoreactivity and fibroblast

growth factor receptor messenger RNA. The proliferating activity of these chondrocytes is suggested to exceed that of normal annular cells.

CONCLUSION: Basic fibroblast growth factor is suggested to promote proliferation of chondrocytes in degenerated discs in an autocrine or paracrine manner. Basic fibroblast growth factor may be related to intervertebral disc degeneration as a proliferation-stimulating factor

of chondrocytes that replace normal annular cells during disc degeneration.

=> s annulus/ab:bi

2789 ANNULUS/BI

5401617 AB/F/A

2679 ANNULUS/AB

(ANNULUS/BI (L) AB/F/A)

2789 ANNULUS/BI

L11 2789 ANNULUS/AB:BI

=> s l11 and (implant? or transplant?)/ab:bi

129889 IMPLANT?/BI

5401617 AB/F/A

84121 IMPLANT?/AB

(IMPLANT?/BI (L) AB/F/A)

129989 IMPLANT?/BI

281209 TRANSPLANT?/BI

5401617 AB/F/A

93564 TRANSPLANT?/AB

(TRANSPLANT?/BI (L) AB/F/A)

281209 TRANSPLANT?/BI

L12 413 L11 AND (IMPLANT? OR TRANSPLANT?)/AB:BI

=> s l12 and disc/ab:bi

26941 DISC/BI

5401617 AB/F/A

15733 DISC/AB

(DISC/BI (L) AB/F/A)

26941 DISC/BI

L13 16 L12 AND DISC/AB:BI

=> d l-bib ab

YOU HAVE REQUESTED DATA FROM 16 ANSWERS -

CONTINUE? Y/(N/Y)

L13 ANSWER 1 OF 16 MEDLINE

AN 200032785 MEDLINE

DN 20032785

TI Mitral valve replacement in the presence of massive posterior annular

calcification.

AU Lin P Y, Kan C D, Luo C Y, Yang Y J

CS Department of Cardiovascular Surgery, Chiayi Christian Hospital, Taiwan, R.O.C.

SO JOURNAL OF CARDIAC SURGERY. (1999 Jul-Aug) 14 (4) 266-9.

Journal code: BEN ISSN: 0886-0440

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 20000904

AB Replacement of the mitral valve in the presence of extensive calcification of the posterior ***annulus*** is a technical challenge. The

heavily calcified ***annulus*** often results in difficulties of seating the prosthesis and later periprosthetic leakage. A radical calcium

debridement may leave a friable and thin ***annulus*** that contributes to

the risks of prosthesis dehiscence and ventricular perforation. To avoid

technical difficulties and associated catastrophic complications, we

devised a new technique of mitral valve replacement that allows a

surgeon to ***implant*** a prosthesis securely. This technique involves

inserting a larger single tilting ***disc*** mechanical valve

(Medtronic Hall) ***disc*** with intra-atrial anchorage over the

posterior sector of the calcified ***annulus***, orienting the

working (major) orifice of the mechanical valve anteriorly, and thereby

tilting the lesser occluder segment of the ***disc*** upward into the

atrium

and away from the calcification in diastole. By utilizing this method, we have successfully performed mitral valve replacement in two patients who exhibited massive calcification of the posterior mitral ***annulus***

Postoperative transesophageal echocardiography showed excellent hemodynamic performance of the ***implanted*** valves. We therefore recommend this simple, safe, and time-saving procedure as a feasible method to deal with this surgical dilemma

L13 ANSWER 2 OF 16 MEDLINE

AN 1999304385 MEDLINE
DN 99304385

TI ***Disc*** extrusion in a Rottweiler dog with caudal cervical spondylomyelopathy after failure of intervertebral distraction/stabilisation.

AU Marchewsky A M, Richardson J L
CS Division of Veterinary and Biomedical Sciences, Murdoch University,

Western Australia
SO AUSTRALIAN VETERINARY JOURNAL, (1999 May) 77 (3) 295-7.

Journal code: JVE. ISSN: 0005-0423.

CY Australia
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 1999309

AB A Rottweiler dog was presented with an 8 week history of hindlimb ataxia.

Neurological examination localised the lesion to the cervical spinal cord.

Myelography demonstrated dynamic compressive lesions at C5-6 and C6-7

consistent with a diagnosis of caudal cervical spondylomyelopathy. Distraction/stabilisation of both discs was performed using interbody

polymethyl methacrylate. Both ***implants*** subsequently failed

leading to extrusion of the remaining dorsal ***annulus*** fibrosis of

the C5-6 intervertebral ***disc*** and nonambulatory tetraparesis. A

ventral slot combined with distraction/stabilisation using screws and polymethyl methacrylate was performed and resulted in nearly full

neurological recovery.

L13 ANSWER 3 OF 16 MEDLINE

AN 1998291890 MEDLINE
DN 98291890

TI Intervertebral ***disc*** distraction with a laparoscopic anterior

spinal fusion system.
AU Nibu K, Pangjoh M M, Oakland T, Cholewicki J
CS Department of Orthopaedics, Yamaguchi University School of Medicine,
Japan.

NC ROJ-AR39209 (NNAAS)
SO EUROPEAN SPINE JOURNAL, (1998) 7 (2) 142-7.

Journal code: B9Y. ISSN: 0940-6719.

CY GERMANY, Germany, Federal Republic of
DT Journal, Article, (JOURNAL ARTICLE)
LA English

FS Priority Journals
EM 199810

AB The BAK spinal fusion system has been applied to laparoscopic anterior lumbar interbody fusion. The system, consisting of a pair of

cylindrical ***implants*** with threads, placed symmetrically about the sagittal

plane, functions by tensioning the ***annulus*** fibrosis. Cylindrical

plugs of increasing size are inserted prior to the ***implant*** placement. As the procedure may affect spinal posture and

disc height, we measured changes due to incremental plug insertion using human

cadaveric spine specimens (L5-S1, n = 4). Multi-directional flexibility of

the construct was also measured as a function of plug size. The ***disc*** height change was found to increase initially and

then to level off at 13-mm diameter plugs. In the sagittal plane, the

intervertebral posture first shifted towards kyphotic then came back to the initial lordotic posture with plugs of bigger size. However,

changes in ***disc*** height and spine posture were not statistically significant. Comparing the neutral zone (NZ) flexibility after

inserting the plugs to the intact values, neither the flexion/extension nor the axial rotation NZ showed any significant change. In lateral bending,

the NZ decreased after the insertion of 13-mm plugs (p < 0.05). Insertion of

plugs of increasing size from 9 mm to 12 mm decreased the range of motion (ROM) in all directions (p < 0.05). Insertion of 13-mm and 14-mm

plugs decreased the flexion/extension and lateral bending ROM, but not the axial

rotation ROM, probably indicating some injury to the ***annulus*** fibers.

L13 ANSWER 4 OF 16 MEDLINE

AN 97379586 MEDLINE
DN 97379586

TI Preservation of anterior and posterior leaflet in mitral valve replacement with a tilting- ***disc*** valve [see comments].

CM Comment in: Ann Thorac Surg 1998 Jun;65(6):1840-1
Comment in: Ann Thorac Surg 1999 Jan;67(1):293-4

AU Choh J H

CS Department of Surgery, Sherman Hospital, Elgin, Illinois, USA.
SO ANNALS OF THORACIC SURGERY, (1997 Jul) 64 (1) 271-3.

Journal code: 683. ISSN: 0003-4975.

CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English

FS Abridged Index Medicus Journals; Priority Journals
EM 199710

AB An operative technique for mitral valve replacement with preservation of

chordae tendineae to both the anterior and posterior leaflets is described. The anterior mitral valve leaflet is completely detached

from the ***annulus*** and divided into three to four islands of tissue,

each with attached chordae tendineae. These islands are transposed under the posterior leaflet and secured with 4-0 polypropylene sutures.

The posterior leaflet is completely preserved with no division or manipulation. This technique allows safe ***implantation*** of

tilting- ***disc*** or bileaflet prostheses with excellent preservation of left ventricular function.

L13 ANSWER 5 OF 16 MEDLINE

AN 97283038 MEDLINE
DN 97283038

TI Intervertebral ***disc*** autografting in a bipedal animal model.

AU Luk K D, Ruan D K, Chow D H, Leong J C
CS Department of Orthopaedic Surgery, University of Hong Kong, China.

SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH, (1997 Apr) (337) 13-26.

Journal code: DFY. ISSN: 0009-921X.

CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English

FS Abridged Index Medicus Journals; Priority Journals
EM 199708

EW 19970801

AB Fusion of the spine while restoring stability of the spinal segment, fails to preserve spinal mobility. Long term complications of accelerated

degeneration in the neighboring segments have been reported. The present study explores the possibility of intervertebral ***disc*** autografting in a bipedal animal model by isolating a lumbar

disc together with the adjacent end plates and repositioning it with

minimal internal fixation. Fourteen Rhesus monkeys were sacrificed at 2, 4, 6, and 12 months after surgery and the grafted discs were examined radiologically, biochemically, pathologically, and biomechanically. Healing of the bony end plate was seen between 2 to 4 months postoperatively. There was early loss of ***disc*** height at 2 and 4 months but there was a suggestion of some reconstitution up to 12 months. There was minimal evidence of gross degeneration at all stages. Gradual loss of water content was found in the ***annulus*** and the nucleus. The nucleus pulposus seemed to be able to reaccumulate proteoglycan after an initial drop in the first 4 months. There was significant increase in hydroxyproline content in the ***annulus*** fibrosis and the nucleus pulposus. Biomechanically, the grafted ***disc*** showed hypermobility in the first 4 months but gradually became stabilized with time. Results from this study suggested that a fresh intervertebral autograft could survive a period of ischemia. Although the physiology of the ***disc*** was damaged, it was able to preserve a certain degree of segmental mobility without sacrificing stability. Further studies are required to validate these results and the field of ***disc*** allografting should be explored.

L13 ANSWER 6 OF 16 MEDLINE
AN 97273538 MEDLINE
DN 97273538
TI Retrodental fibrocartilaginous mass. Report of a case.
AU Chen T Y, Lui T N
CS Department of Neurosurgery, Chang Gung Medical College, Taoyuan, Taiwan.
SO SPINE. (1997 Apr 15) 22 (8) 920-3.
Journal code: UXX. ISSN: 0362-2436
CY United States
DT Journal Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199709
EW 19970901
AB STUDY DESIGN: This is a report of a 63-year-old woman with a retrodental fibrocartilaginous mass and myelopathy. OBJECTIVE: To describe the pathophysiology of the retrodental fibrocartilaginous mass formation and its association with the C2-C3 ***disc***. SUMMARY OF BACKGROUND DATA:

High cervical ***disc*** protrusion is an uncommon condition and presents even more rarely as a craniovertebral junction mass with spinal cord compression. Uncertainty remains regarding the etiology of its formation in the retrodental region. METHODS: The patient underwent surgical intervention with transoral decompression and posterior C1-C2 skeletal fusion with bony graft. RESULTS: On the basis of dynamic plain radiographs, magnetic resonance imaging, and surgical pathology, the origin of the mass may have been the C2-C3 ***disc***. CONCLUSIONS: We hypothesized that the mechanism underlying the posterior odontoid fibrocartilaginous mass with spinal cord involvement most likely originate upward migration of the C2-C3 ***annulus*** fragment to the atlantoaxial joint as a result of aging. Secondary fibrocartilaginous metaplasia plays a major role in creating such ***disc***-like material. To prevent unrecoverable myelopathy, early detection and anterior decompression with posterior C1-C2 skeletal fixation and bony fusion are the best treatment methods.

L13 ANSWER 7 OF 16 MEDLINE
AN 95367733 MEDLINE
DN 95367733
TI Materials and design concepts for an intervertebral ***disc*** spacer.
AU Vuono-Harris M, Langrana N A, Parsons J R, Lee C K, Zimmerman M C
CS University of Medicine and Dentistry of New Jersey, New Jersey Medical School, Section of Orthopaedic Surgery, Newark 07103, USA.
SO JOURNAL OF APPLIED BIOMATERIALS. (1995 Summer) 6 (2) 117-23
Journal code: BCT. ISSN: 1045-4861
CY United States
DT Journal Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199511
AB The main function of the intervertebral ***disc*** is to transmit and attenuate compressive and torsional forces, and stabilize the intervertebral joint. Unfortunately, the ***disc*** may be displaced or damaged due to trauma or disease causing the nucleus to herniate and protrude into the vertebral canal or intervertebral foramen. Pressure on the spinal nerve may cause pain or paralysis in the area of its distribution. At present, the surgical procedures used to alleviate this

condition include ***disc*** excision, and/or spinal fusion. A more desirable situation would involve removing the nucleus pulposus and part or all of the ***annulus*** fibrosis and ***implanting*** a suitable biofunctional equivalent. Such a prosthesis should attenuate stresses and prevent abnormal stress at adjacent intervertebral joints. Maintenance of normal ***disc*** height would prevent impingement of the posterior facet joints and facet joint syndrome. In a previous companion paper (I. Applied Biomater. 5:125-132, 1994), the mechanical behavior of ***disc*** prostheses manufactured from fiber reinforced, elastomeric thermoset resins were examined. In order to develop devices which were more practical from a manufacturing standpoint and extremely reproducible, the fiber reinforced thermoset resins were replaced by multi-diameter thermoplastic elastomeric materials. In the present paper, the mechanical properties of thermoplastic multicomponent designs have been investigated.

L13 ANSWER 8 OF 16 MEDLINE
AN 95318567 MEDLINE
DN 95318567
TI An experimental study on preserving the intervertebral discs, in dog--prior to ***disc*** allografting.
AU Wakabayashi K, Matsuzaki H
CS Department of Orthopaedic Surgery, Nihon University School of Medicine, Tokyo.
SO NIPPON SEIKI GAKKA ZASSHI. JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION. (1995 May) 69 (5) 311-21.
Journal code: JON. ISSN: 0021-5325
CY Japan
DT Journal Article. (JOURNAL ARTICLE)
LA Japanese
FS Priority Journals
EM 199510
AB ***Disc*** grafting is a new surgical procedure that may be suitable for preserving mobility of the spine. This experimental study was designed to determine a method of favorably preserving a ***disc*** prior to allografting. The lumbar vertebrae of adult mongrel dogs were aseptically excised, regarded as the vertebral body. ***disc*** unit, and preserved at -80 degrees C, or at 4 degrees C. In the preservation at 4 degrees C,

UV solution, Euro-Collins solution, EP-II solution, Ham's F-12, or physiological saline solution was used for preservation. Isotopes were used for determining the activities of the ***disc*** cells. In the preservation at -80 degrees C, it was difficult to maintain the activity regardless of the preservation period. There was no difference among these preservative solutions in the preservation at 4 degrees C on the nucleus pulposus, but the 2-day preservation in UV solution provided the best results in terms of the ***annulus*** fibrosis. Based on the results of these experiments, at -80 degrees C it was difficult to maintain the activity of ***disc*** cells while at 4 degrees C the UV solution was the most effective for preserving the annulus fibrosus. However the period of preservation was very short, and a new method to enable longer periods of preservation should be developed.

L13 ANSWER 9 OF 16 MEDLINE
AN 95310310 MEDLINE
DN 95310310
TI A rare complication of mitral valve replacement: sudden cardiac death for immobilization of ***disc*** valve by an unraveled suture.
AU Acitis Dato G M, Boggiolo G, Acitis Dato A Jr, Catano C, Di Summa M
CS Italian Institution of Cardiac Surgery, Molinette Hospital, Turin, Italy.
SO JOURNAL OF CARDIOVASCULAR SURGERY, (1995 Apr) 36 (2) 167-9.
Journal code: HMF. ISSN: 0021-9509.
CY Italy
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199509
AB ***Disc*** immobilization caused by an unraveled suture in a mitral valve prosthesis represents a rare extrinsic complication in heart valve replacement. We report a case of a 54-year-old white male who underwent mitral valve replacement because of a severe mitral regurgitation. A Bjork-Shiley tilting ***disc*** was ***implanted*** with interrupted 'U' shaped 3/0 silk sutures. There were no complications and the patient was discharged in the 10th postoperative day. Twenty days after surgery the patient died for acute pulmonary edema. Autopsy revealed

an unraveled suture producing interference with the tilting ***disc*** as a cause of ***disc*** prosthesis immobilization in closed position. The possible explanation of this rare complication is the combination between unraveled suture and the pleating held by Teflon sewing ring after restoring heart function. A flaccid heart can produce an overestimation of the ***annulus*** size and the valve ring can bring an anomalous interference with the valve mechanism. In conclusion ***disc*** immobilization by an unraveled suture is a complication that can occur very rarely but an accurate prevention must be warranted particularly with a tilting ***disc*** more than a ball-and-socket prosthesis.

L13 ANSWER 10 OF 16 MEDLINE
AN 94157712 MEDLINE
DN 94157712
TI Mechanical evaluation of a canine intervertebral ***disc*** spacer: in situ and in vivo studies.
AU Vuono-Hawkins M, Zimmerman M C, Lee C K, Carter F M, Parsons J R, Langrana N A
CS Osteonics Corporation, Allendale, New Jersey.
SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1994 Jan) 12 (1) 119-27.
Journal code: JIQ. ISSN: 0736-0266.
CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199406
AB An elastomeric intervertebral ***disc*** spacer with hydroxyapatite ingrowth surfaces was ***implanted*** in a canine model. We studied (a) the mechanical behavior of motion segments at time 0 and at 3, 6, and 12 months and (b) the effect of the interface between the spacer and vertebral bone on ***implant*** stability and bone ingrowth. A polymeric spacer was designed with compressive and torsional properties similar to those of the isolated canine lumbar ***disc***. ***Implantation*** of the spacer in canine cadaver motion segments permitted in situ biomechanical evaluation at time 0. An in vivo study permitted continuous neurological monitoring of animals, with evaluation of mechanical behavior, stability, and ingrowth at 3, 6, and 12 months.

Mechanical testing of cadaver motion segments with the spacer in situ resulted in decreased compressive and torsional stiffnesses, averaging 25 and 42%, respectively. This decrease was due to a combination of the surgical insult to the ***annulus*** and decalcification of adjacent vertebral endplates. In the in vivo study, all 12 animals tolerated the surgery well and none had permanent neurological impairment. The measured parameters indicated that behavior of the spacer-motion segment composite appeared to return to normal within 3-6 months. However, despite use of a porous hydroxyapatite on the ***implant*** surface, there was no significant bone ingrowth. Instead, a layer of dense fibrous connective tissue was formed at the spacer-vertebral bone interface. Early migration of five of the 12 spacers resulted in eccentric loading patterns with consistent reactive osteolytic formation.

L13 ANSWER 11 OF 16 MEDLINE
AN 92173641 MEDLINE
DN 92173641
TI Preservation of all thoracic tendineae and papillary muscle during mitral valve replacement with a tilting ***disc*** valve.
AU Felicia H L, Daugherty J B, Perry J E, Bell J H, Hsieh R E, Johnson G H
CS Cardiovascular Surgery Associates, Las Vegas, NV 89109.
SO JOURNAL OF CARDIAC SURGERY, (1990 Jun) 5 (2) 81-5.
Journal code: BEN. ISSN: 0886-0440.
CY United States
DT Journal, Article: (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199206
AB Mitral valve replacement was performed in 21 patients using a surgical technique that preserves the entire papillary muscle and chordal apparatus. With this technique, the anterior mitral leaflet is split from the center of the free edge toward the ***annulus***. Bilateral incisions are made from the proximal end of this split to the two mitral commissures, detaching the anterior leaflet from the ***annulus***. These two halves of the leaflet, with all chordae intact (corresponding to the anterolateral and posteromedial papillary muscles), are judiciously trimmed to remove areas of leaflet untethered by chordae tendineae and

(when necessary) fibrous thickening, then swung posteriorly and sutured to the posterior mitral leaflet. This surgical technique is expected to favor the preservation of left ventricular function and avoid occurrence of irreversible left ventricular dilation/dysfunction, and has been used successfully for calcific and degenerative etiologies, using both tilting ***disc*** valves and porcine bioprostheses. It is especially useful in the ***implantation*** of tilting ***disc*** and bileaflet mechanical prostheses because anterior subvalvular chordae tissue may interfere with the ***disc*** excursion and relocated to the posterior leaflet ***annulus***.

L13 ANSWER 12 OF 16 MEDLINE
AN 89068233 MEDLINE
DN 89068233
TI Internal deformations of intact and denudeated human lumbar discs subjected to compression, flexion, and extension loads.
AU Serrasi R E, King M H, Muller D L, Pope M H
CS McClure Musculoskeletal Research Center, Department of Orthopaedics and Rehabilitation, University of Vermont, Burlington 05405.
SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1988) 7(1) 122-31.
Journal code: JIQ ISSN: 0736-0266.

CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198903
AB Three rows of six evenly spaced 0.5 mm metal beads were ***implanted*** midspanally into the discs of ten L4-5 human lumbar motion segments. The intradiscal bead displacements in response to compression, flexion, and extension loads were obtained by digitizing the bead positions from sagittal plane radiographs taken before and during the load application. Each ***disc*** was denudeated and the loading process was repeated. For the intact discs, in compression, the intradiscal bead displacements were predominantly anterior. In flexion, the beads in the center of the ***disc*** moved posteriorly whereas the beads closer to the periphery of the ***disc*** moved anteriorly. In extension, the central beads moved anteriorly and the beads closer to the periphery of the ***disc*** moved posteriorly. After denudeation, the bead displacements for compression and flexion implied an inward bulging of the inner

wall of the ***annulus***, despite outward bulging of the ***disc*** surface. We hypothesize that the inward bulging causes radial tensile stresses within the ***disc***, leading to disruption of adjacent layers of ***annulus***.

L13 ANSWER 13 OF 16 MEDLINE
AN 88331019 MEDLINE
DN 88331019
TI Valve replacement with the tilting ***disc*** Sorin prosthesis in patients with narrow aortic ***annulus***.
AU Calafore A M, Santarelli P, Glicca F, Luciani N, Maddesira N, Palascia L, Pessenti F
CS Department of Cardiac Surgery, University of Chieti, Italy.
SO JOURNAL OF CARDIOVASCULAR SURGERY, (1988 Jul-Aug) 29 (4) 387-91.
Journal code: HMF ISSN: 0021-9509.

CY Italy
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198812
AB The Authors summarize their 5-year experience of the clinical use of the Sorin tilting ***disc*** prosthesis in 40 patients (group A) with narrow aortic ***annulus***, compared with a control group (group B: 116 patients) where a larger Sorin prosthesis was ***implanted***. Follow-up lasted from 1 to 60 months, with a mean of 25.6 +/- 12.3 in group A and 20.4 +/- 11.9 in group B. Early and late mortality were low: 1/40 and 2/39 (2.5 and 5.1%) in group A and 4/116 and 9/112 (3.4 and 8.0%) in group B (p = NS); only two deaths, one in each group, were prosthesis-related. Actuarial survival was comparable: 91.2% (CI: 96.3-86.1%) in group A and 78.0% (CI: 87.6-68.4%) in group B, as were probability of being event-free and alive, non-reoperated and with few or no symptoms [group A: 61.7% (CI: 72.4-51.0%) and 77.4% (CI: 85.9-68.9%) respectively; group B: 78.8% (CI: 83.4-74.2%) and 61.1% (CI: 85.9-68.9%) respectively]. The Authors conclude that the Sorin tilting ***disc*** prosthesis is a reliable valve substitute in the narrow aortic ***annulus***; they recommend that enlargement procedures should be confined only to patients with ***annulus*** size less than 19 mm.

L13 ANSWER 14 OF 16 MEDLINE
AN 88113346 MEDLINE
DN 88113346
TI [Comparative study of mechanical heart valves for ***implantation*** in mitral position].
Vergleichende Untersuchung mechanischer Herzklappen zur ***Implantation*** in Mitralkposition.

AU Heiliger R, Lambertz H, Gels J, Mittermayer C
CS Reinisch-West-fälischen Technischen Hochschule, Aachen.
SO HERZ, (1987 Dec) 12 (6) 405-12.
Journal code: F88 ISSN: 0340-9937.
CY GERMANY, WEST-Germany, Federal Republic of
DT Journal, Article, (JOURNAL ARTICLE)
LA German
FS Priority Journals
EM 198805
AB For hydrodynamic comparison of mechanical heart valves, three tilting ***disc*** valves (Bjork-Shiley SD, Bjork-Shiley CCD, Bjork-Shiley Monostrut) and two bileaflet valves (St. Jude Medical, Duomedics) with ***annulus*** diameter $d_A = 31$ mm were perfused in a mock mitral position. Flow, pressure, and orifice area were measured during pulsatile flow. Insufficiency, maximal orifice area, mean orifice area, performance index and efficiency index were calculated. The tilting ***disc*** valves show distinctly lower orifice areas than the bileaflet valves. The mean value of maximal orifice area Annax of the Bjork-Shiley prostheses varies between 227.82 +/- 7.77 mm² and 243.21 +/- 6.21 mm². The mean value of Annax of the Duomedics prosthesis is 295.45 +/- 7.76 mm² and that of the St. Jude Medical prosthesis is 477.43 +/- 11.32 mm². The calculated mean orifice areas A of the bileaflet valves are also higher than those of the tilting ***disc*** valves. The mean values of A are: Bjork-Shiley SD: 183.55 +/- 10.03 mm²; Bjork-Shiley CCD: 206.30 +/- 8.62 mm²; Bjork-Shiley Monostrut: 210.12 +/- 4.74 mm²; St. Jude Medical: 398.69 +/- 19.55 mm²; Duomedics: 262.90 +/- 6.84 mm². The performance index PI is qualitatively identical with the values of the mean orifice area A because in this study only heart valves of the same size were investigated. For calculation of insufficiency I the entire reflux volume VR including closing volume VS and leakage volume VL was used, thus, insufficiency was also determined in intact prostheses. The values

of
insufficiency of the mechanical valves investigated are higher for
the
bileaflet valves than for the tilting ***disc***
valves (ABSTRACT
TRUNCATED AT 250 WORDS)

L13 ANSWER 15 OF 16 MEDLINE
AN 84061951 MEDLINE
DN 84061951
TI Effects of the ablation of the nucleus pulposus on the vibrational
behavior of the lumbosacral hinge.
AU Quantick P, Pellicani L, Lienhard F, Valey B
SO JOURNAL OF BIOMECHANICS, (1983) 16 (10) 777-84.
Journal code: HIF, ISSN: 0021-9290.
CY United States
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198403
AB This study was designed to investigate the respective damping
properties
of the ***annulus*** fibrosis and nucleus pulposus of the
intervertebral ***disc*** during propagation of vibration waves
through the osteoligament-muscular axis of the spine. The study
was
conducted on a 8-10 kg deeply anesthetized baboon. In the first
surgical
phase five accelerometers were ***implanted*** in the first
sacral
vertebra and on the anterior side of the four lower lumbar vertebrae.
The
biinstrumented animal was placed in a restraining chair and
exposed to
narrow-bandwidth (0-100 Hz) 0.16 G RMS random vibration. Once
data was
recorded, the nuclei pulposi of the studied discs were removed by
suction,
the surrounding annuli remaining intact. The still deeply
anesthetized
animal was again exposed to the same 0-100 Hz, 0.16 G RMS
vibration.
Results were analyzed and their reproducibility was tested on three
animals.
L13 ANSWER 16 OF 16 MEDLINE
AN 77170613 MEDLINE
DN 77170613
TI Prosthetic valves 1977: a retrospective analysis and a look to the
future.
AU Savage L R
SO MEDICAL INSTRUMENTATION, (1977 Mar-Apr) 11 (2)
107:9.
Journal code: M12, ISSN: 0004-5446.
CY United States
DT Journal Article; (JOURNAL ARTICLE)
LA English

EM 197708
AB Experimental and clinical studies that we published in 1972
indicated that
the ability of man to extend tissue inward from the valve
attachment site
is limited to few millimeters, and that the cardiovascular wall/valve
body
spatial relationships are critically important in prevention of
thrombotic
complications. Since 1972, clinical observations have supported
these
conclusions. Cloth-covered valve prostheses in man have failed to
become
completely covered by tissue. The tilting ***disc*** valve
(Bjork-Shiley) has proved to be an advance over the ball design.
However,
for maximum hydraulic efficiency, the 60 degrees opening of the
prostheses
must be augmented by positioning the valve in harmony with the
tilt of the
annulus into which is ***implanted***. Currently, we
are
studying the functional significance (gradient and turbulence) of
various
positional relationships of the opened ***disc*** to the tilt of
the
anatomic valve ***annulus***. Changing the orientation of the
Bjork-Shiley mitral prosthesis, for instance, can mean a difference
in
functional opening ranging from 30degrees to 90degrees, and from
45degrees
to 75degrees for the aortic valve.
=> s 113
'AB IS NOT A VALID FIELD CODE
L14 -46 L13
=> dup rem 114
PROCESSING COMPLETED FOR L14
L15 31 DUP REM L14 (15 DUPLICATES REMOVED)
=> d 1-bib ab
YOU HAVE REQUESTED DATA FROM 31 ANSWERS-
CONTINUE? Y/N)Y
L15 ANSWER 1 OF 31 INPADOC COPYRIGHT 2000 EPO
LEVEL 1
AN 13316631 INPADOC ED 20000822 EW 200033 UP
20000822 UV 200033
TI PROSTHETIC NUCLEUS REPLACEMENT FOR SURGICAL

RECONSTRUCTION OF
INTERVERTEBRAL DISCS AND TREATMENT METHOD
IN LAWSON, KEVIN, JON
INS LAWSON KEVIN JON
INA US
PA LAWSON, KEVIN, JON
PAS LAWSON KEVIN JON
PAA US
TL English; French
LA English
DT Patent
PT WOAI PUBL OF THE INT APPL WITH INT SEARCH
REPORT
PI WO 2000042953 AI 20000727
DS RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC
NL PT SE
W: CA JP
AI WO 2000-US1468 A 20000120
PRAI US 1999-237005 A 19990125
AB A prosthetic nucleus (30) replacement comprises a solid
flattened oval
disk. The top surface (32) of the ***disc*** is domed, and has
a
crest that is about three times higher than the crest on the domed
bottom
surface (34). Both top, and bottom surfaces are therefore convex. A
peg
(36) extends down from the middle of the bottom domed surface
(34), and
is used to pin the ***disc*** to the lower of two vertebrae it
fits
between. Metal markers are inserted into the peg (36), and an
outside
edge of the ***disc*** (22) so that radiographs can be used to
determine the ***disc***'s in situ position. The prosthetic
nucleus
(30) replacement is surgically ***implanted*** into the
hollowed out
intervertebral space through a flap out in the natural
annulus
fibrosis. The lower vertebrae (22) is prepared to receive the peg
(36) by
clearing the material covering the top of the bone matrix. Bone
cement is
used around the peg (36) to ensure a tight fit, and immobile
attachment
of the ***disc*** to the lower vertebrae (22).
L15 ANSWER 2 OF 31 INPADOC COPYRIGHT 2000 EPO
LEVEL 1
AN 121479159 INPADOC ED 20000215 EW 200005 UP
2000426 UV 200016
TI TEMPLATE FOR POSITIONING INTERBODY FUSION
DEVICES
IN BOYD, LAWRENCE, M.; RAY, EDDIE, III; MCGAHAN,
THOMAS

INS BOYD LAWRENCE M; RAY EDDIE III; MCGAHAN THOMAS
 INA US; US; US
 PA SDGI HOLDINGS, INC.; BOYD LAWRENCE, M.; RAY, EDDIE, III; MCGAHAN, THOMAS
 PAS SDGI HOLDINGS INC; BOYD LAWRENCE M; RAY EDDIE III; MCGAHAN THOMAS
 PAA US; US; US; US
 TL English, French
 LA English
 DT Patent
 PT WO/2002 PUBL. OF THE INT. APPL. WITHOUT INT. SEARCH REP.
 PI WO 2000001293 A2 20000113
 DS RW: GH GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY
 DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW
 ML MR NE SN TD TG
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD
 GE GH GM HR HU IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD
 MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG
 US UZ VN YU ZA ZW
 AI WO 1999-US15291 A 19990707
 PRAI US 1998-111203 A 19980707
 OSDW 2000-170963
 AB A template assembly (100) is provided for marking locations on the
 disc ***annulus*** for the ***implantation*** of an interbody fusion device or the introduction of a working instrument. The template assembly (100) includes a tubular body (101) sized for percutaneous introduction into a patient and advancement to an affected intervertebral ***disc***. An elongated shaft (110) slidably extends through the tubular body (101) and is threadably engaged to the handle-mounted thumb wheel (152) so that rotation of the thumb wheel relative to the tubular body (101) retracts the shaft (110) through the body. A guide foot (111) with a rotatable cam (113) near the distal end of the tubular body (101) is operable by the shaft (110) and may be pivoted from a first position aligned with the tubular body (101) to a second deployed position oriented transversely to the tubular body (101). The guide assembly has an electrocautery projection (117) for marking locations on the ***disc*** ***annulus***.

L15 ANSWER 3 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 134399559 INPADOC ED 20000905 EW 200035 UP 20000905 UW 200035
 TI TEMPLATE ASSEMBLY FOR FACILITATING THE PLACEMENT OF INTERBODY FUSION DEVICES
 IN BOYD LAWRENCE M; RAY, III, EDDIE; MCGAHAN, THOMAS
 INS BOYD LAWRENCE M; RAY III EDDIE; MCGAHAN THOMAS
 INA US; US; US
 PA SDGI HOLDINGS, INC.
 PAS SDGI HOLDINGS INC
 PAA US
 DT Patent
 PT USA UNITED STATES PATENT
 PI US 6096044 A 20000801
 AI US 1998-111203 A 19980707
 PRAI US 1998-111203 A 19980707
 US 1997-889473 A2 19970708
 US 1995-427432 A3 19950424
 AB A template assembly is provided for marking locations on the ***disc*** ***annulus*** for the ***implantation*** of an interbody fusion device or the introduction of a working instrument. The template assembly includes a tubular body sized for percutaneous introduction into a patient and advancement to an affected intervertebral ***disc***. An elongated shaft slidably extends through the tubular body and is threadably engaged to the handle-mounted thumb wheel so that rotation of the thumb wheel relative to the tubular body retracts the shaft through the body. A guide foot with a rotatable cam near the distal end of the tubular body is operable by the shaft and may be pivoted from a first position aligned with the tubular body to a second deployed position oriented transversely to the tubular body. The guide assembly has an electrocautery projection for marking locations on the ***disc*** ***annulus***.

L15 ANSWER 4 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 119862583 INPADOC ED 20000103 EW 199951 UP 20000405 UW 200013
 TI TAPERED PROSTHETIC SPINAL ***DISC***
 NUCLEUS
 IN RAY, CHARLES D; ASSELL, ROBERT L.
 INS RAY CHARLES D; ASSELL, ROBERT L.
 PA RAYMEDICA, INC.
 PAS RAYMEDICA, INC.
 INA US
 PA SDGI HOLDINGS, INC.
 PAS SDGI HOLDINGS INC
 PAA US
 DT Patent
 PT USA UNITED STATES PATENT
 PI US 6033406 A 20000307
 AI US 1998-42910 A 19980317
 PRAI US 1998-42910 A 19980317
 US 1996-677135 A1 19960709
 US 1995-437523 A3 19950509
 US 1993-116351 B1 19930902
 US 1992-938708 B1 19920901
 US 1992-852577 A3 19920317
 OSDW 2000-255673
 AB A method for internal fixation of vertebra of the spine to facilitate graft fusion includes steps for excising the nucleus of an affected ***disc***, preparing a bone graft, instrumenting the vertebrae for fixation, and introducing the bone graft into the resected nuclear space.
 Disc resection is conducted through two portals through the ***annulus***, with one portal supporting resection instruments and the other supporting a viewing device. The fixation hardware is inserted through small incisions aligned with each pedicle to be instrumented. The hardware includes bone screws, fixation plates, engagement nuts, and linking members. In an important aspect of the method, the fixation plates, engagement nuts and linking members are supported suprafascially but subcutaneously so that the fascia and muscle tissue are not damaged.
 The bone screw is configured to support the fixation hardware above the fascia. In a further aspect of the invention, a three component system is provided for use during the bone screw ***implantation*** steps of the method.

L15 ANSWER 5 OF 31 INPADOC COPYRIGHT 2000 EPO

PAA US
 TL English, French
 LA English
 DT Patent
 PT WO/1 PUBL.OF THE INT.APPL. WITH INT.SEARCH REPORT
 PI WO 9962439 A1 19991209
 DS RW: GQ GM KE LS MW SD SL SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY
 DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW
 ML MR NE SN TD TG
 W: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD
 GE GH GM HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK
 MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN
 YU ZA ZW
 AI WO 1999-US12478 A 19990604
 PRAI US 1998-90820 A 19980604
 OSDW 2000-086837
 AB This invention is a prosthetic spinal ***disc*** nucleus (20) for
 implantation into a nucleus cavity of a spinal
 disc
 The nucleus cavity is defined by an opposing pair of vertebral bodies,
 and an ***annulus***. The prosthetic spinal ***disc*** nucleus has a formed hydrogel core (22) configured to expand from a dehydrated state to a hydrated state. The hydrogel core is wedge shaped in at least the hydrated state. The constraining jacket (24) surrounding the hydrogel core is flexible, but substantially inelastic, and has a generally fixed maximum volume less than a volume of a nucleus cavity such that the constraining jacket is configured to prevent the hydrogel core from conforming to an ***annulus*** upon hydration.

L15 ANSWER 6 OF 31 INPADOC COPYRIGHT 2000 EPO LEVEL 1
 AN 111763543 INPADOC ED 19990818 EW 199932 UP
 19991021 UW 199941
 TI INTERVERTEBRAL PROSTHESIS
 IN HUSSON JEAN-LOUIS, BAUMGARTNER, WALTER, FREUDIGER, STEFAN
 INS HUSSON JEAN-LOUIS, BAUMGARTNER, WALTER, FREUDIGER, STEFAN
 INA FR: CH, CH
 PA SUZLER ORTHOPAEDIE AG
 PAS SUZLER ORTHOPAEDIE AG
 PAA CH

DT Patent
 PT USA UNITED STATES PATENT
 PI US 5919235 A 19990706
 AT US 1996-723146 A 19960930
 PRAI US 1996-723146 A 19960930
 EP 1993-810701 A 19931108
 AB An ***implant***, in particular an intervertebral prosthesis, which consists of an elongated elastic body which is form-elastic and takes on the form of a spiral S in the force-free state. The spiral can be drawn by a reverse winding up into an insertion instrument which is only insubstantially larger in the insertion region than the cross-section of the elongated elastic body in order to reach the inner space of an intervertebral ***disc*** through a small opening in the ***annulus***. Fibrosis and to push in and sever off the self-winding spiral when the interior is filled. This has the advantage that inner spaces of differing sizes can be filled with the same spiral.

L15 ANSWER 7 OF 31 MEDLINE DUPLICATE
 AN 1999304385 MEDLINE
 DN 99304385
 TI ***Disc*** extrusion in a Rottweiler dog with caudal cervical spondylomyelopathy after failure of intervertebral distraction/stabilisation.
 AU Marchewsky A M, Richardson J L
 CS Division of Veterinary and Biomedical Sciences, Murdoch University,
 Western Australia
 SO AUSTRALIAN VETERINARY JOURNAL. (1999 May) 77 (5) 295-7
 Journal code: 91E. ISSN: 0005-0423.
 CY Australia
 DT Journal, Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 19990909
 EW 19990903
 AB A Rottweiler dog was presented with an 8 week history of hindlimb ataxia.
 Neurological examination localised the lesion to the cervical spinal cord.
 Myelography demonstrated dynamic compressive lesions at C5-6 and C6-7
 consistent with a diagnosis of caudal cervical spondylomyelopathy.
 Distraction/stabilisation of both discs was performed using interbody polymethyl methacrylate. Both ***implants*** subsequently failed leading to extrusion of the remaining dorsal ***annulus*** fibrosis of the C5-6 intervertebral ***disc*** and nonambulatory tetraparesis. A

ventral slot combined with distraction/stabilisation using screws and polymethyl methacrylate was performed and resulted in nearly full neurological recovery.

L15 ANSWER 8 OF 31 MEDLINE DUPLICATE
 AN 2000332785 MEDLINE
 DN 200332785
 TI Mitral valve replacement in the presence of massive posterior annular calcification.
 AU Lin P Y, Kao C D, Luo C Y, Yang Y I
 CS Department of Cardiovascular Surgery, Chiayi Christian Hospital, Taiwan.
 SO JOURNAL OF CARDIAC SURGERY. (1999 Jul-Aug) 14 (4) 266-9.
 Journal code: BEN. ISSN: 0886-0440.
 CY United States
 DT Journal, Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 200009
 EW 20000904
 AB Replacement of the mitral valve in the presence of extensive calcification of the posterior ***annulus*** is a technical challenge. The heavily calcified ***annulus*** often results in difficulties of seating the prosthesis and later periprosthetic leakage. A radical calcium debriement may leave a friable and thin ***annulus*** that contributes to the risks of prosthesis dehiscence and ventricular perforation. To avoid technical difficulties and associated catastrophic complications, we devised a new technique of mitral valve replacement that allows a surgeon to ***implant*** a prosthesis securely. This technique involves inserting a larger single tilting ***disc*** mechanical valve (Medtronic Hall ***disc***) with intra-atrial anchorage over the posterior sector of the calcified ***annulus***, orienting the working (major) orifice of the mechanical valve anteriorly, and thereby tilting the lesser occluder segment of the ***disc*** upward into the atrium and away from the calcification in diastole. By utilizing this method, we have successfully performed mitral valve replacement in two patients who exhibited massive calcification of the posterior mitral ***annulus***.

Postoperative transthoracic echocardiography showed excellent hemodynamic performance of the ***implanted*** valves. We therefore

recommended this simple, safe, and time-saving procedure as a feasible method to deal with this surgical dilemma

L15 ANSWER 9 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1

AN 4769511 INPADOC EW 199833 UP 20000822 UW 200033

TI TEMPLATE FOR POSITIONING INTERBODY FUSION DEVICES

IN BOYD, LAWRENCE M.; RAY, III, EDDIE

INS BOYD, LAWRENCE M.; RAY III, EDDIE

INA US; US

PA SDGI HOLDINGS, INC.

PAS SDGI HOLDINGS INC

PAA US

DT Patent

PTI USA, UNITED STATES PATENT

PI US 5785707 A 19980728

AI US 1997-889473 A 19970708

PRAI US 1997-889473 A 19970708

US 1995-427432 A3 19950424

AB A template assembly is provided for marking locations on the

disc

annulus for the ***implantation*** of an interbody

fusion

device or the introduction of a working instrument. The template

assembly

includes a tubular body sized for percutaneous introduction into a

patient and advancement to an affected intervertebral ***disc***

An

elongated shaft slidably extends through the tubular body and is

threadedly engaged to the tubular body at its proximal end so that

rotation of the shaft relative to the tubular body advances the shaft

through the body. A guide foot is pivotally connected to the distal

end

of the tubular body to be pivoted from a first position aligned with

the

tubular body to a second deployed position oriented substantially

perpendicular to the tubular body. The guide body is pivoted from

the

first position to the second position by advancement of the

elongated shaft through the tubular body. The guide body in one embodiment

defines

a bore through which the working tip of an electrocautery

instrument

extends to mark the ***disc*** ***annulus***. In another

embodiment, the guide body itself defines an electrocautery

projection.

The template assembly can be anchored to the affected

disc by a

guide wire extending through the tubular body and about which the

template assembly can be rotated to make an additional mark on

the

annulus at a predetermined distance from the first mark.

L15 ANSWER 10 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1

AN 46441591 INPADOC EW 19815 UP 19991103 UW 199943

TI METHOD FOR SUBCUTANEOUS SUPRASPINAL

INTERNAL FIXATION

IN MATTHEWS, HALLETT H

INS MATTHEWS, HALLETT H

INA US

PA SDGI HOLDING, INC.

PAS SDGI HOLDING INC

PAA US

DT Patent

PTI USA, UNITED STATES PATENT

PI US 5728097 A 19980317

AI US 1996-677135 A 19960709

PRAI US 1996-677135 A 19960709

US 1995-437523 A3 19950509

US 1993-116351 B1 19930902

US 1992-938708 B1 19920901

US 1992-852577 A3 19920317

AB A method for internal fixation of vertebra of the spine to

facilitate

graft fusion includes steps for excising the nucleus of an affected

disc, preparing a bone graft, instrumenting the vertebrae

for

fixation, and introducing the bone graft into the resected nuclear

space.

Disc resection is conducted through two portals through

the ***annulus***, with one portal supporting resection instruments

and the

other supporting a viewing device. The fixation hardware is

inserted

through small incisions aligned with each pedicle to be

instrumented. The

hardware includes bone screws, fixation plates, engagement nuts,

and

linking members. In an important aspect of the method, the

fixation plates, engagement nuts and linking members are supported

suprafascially

but subcutaneously so that the fascia and muscle tissue are not

damaged.

The bone screw is configured to support the fixation hardware

above the

fascia. In a further aspect of the invention, a three component

dilator

system is provided for use during the bone screw

implantation

steps of the method.

L15 ANSWER 11 OF 31 MEDLINE DUPLICATE

3 AN 1998291890 MEDLINE

DN 98291890

TI Intervertebral ***disc*** distraction with a laparoscopic

anterior

spinal fusion system.

AU Nibu K; Panjabi M M; Oakland T; Cholewicki J

CS Department of Orthopedics, Yarnaguh University School of

Medicine,

Japan.

NC ROJ-AR39209 (NIAMS)

SO EUROPEAN SPINE JOURNAL, (1998) 7 (2) 142-7.

Journal code: B9Y. ISSN: 0940-6719.

CY GERMANY - Germany, Federal Republic of

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199810

AB The BAK spinal fusion system has been applied to laparoscopic

anterior

lumbar interbody fusion. The system, consisting of a pair of

cylindrical

implants with threads, placed symmetrically about the

segmental plane, functions by tensioning the ***annulus*** fibers.

Cylindrical

plugs of increasing size are inserted prior to the ***implant***

placement. As the procedure may affect spinal posture and

disc

height, we measured changes due to incremental plug insertion

using human

cadaveric spine specimens (L5-S1, n = 4). Multi-directional

flexibility of

the construct was also measured as a function of plug size. The

disc height change was found to increase initially and

then to

level off at 13-mm diameter plugs. In the sagittal plane, the

intervertebral posture first shifted towards kyphotic then came back

to

the initial lordotic posture with plugs of bigger size. However,

changes

in ***disc*** height and spine posture were not statistically

significant. Comparing the neutral zone (NZ) flexibility after

inserting

the plugs to the intact values, neither the flexion/extension nor the

axial rotation NZ showed any significant change. In lateral bending,

the NZ decreased after the insertion of 13-mm plugs ($p < 0.05$).

Insertion of

plugs of increasing size from 9 mm to 12 mm decreased the range

of motion

(ROM) in all directions ($p < 0.05$). Insertion of 13-mm and 14-mm

plugs

decreased the flexion/extension and lateral bending ROM, but not

the axial

rotation ROM, probably indicating some injury to the

annulus

fibers.

L15 ANSWER 12 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 36794151 INPADOC UP 20000822 UW 200033
 TI TEMPLATE FOR POSITIONING INTERBODY FUSION DEVICES
 IN BOYD, LAWRENCE M.; RAY, III, EDDIE
 INS BOYD, LAWRENCE M.; RAY III EDDIE
 INA US; US
 PA DANER MEDICAL, INC.
 PAS DANER MEDICAL INC
 PAA US
 DT Patent
 PT USA UNITED STATES PATENT
 PI US 5645549 A 19970708
 AI US 1995-427432 A 19950424
 PRAI US 1995-427432 A 19950424
 AB A template assembly is provided for marking locations on the
 disc
 annulus for the ***implantation*** of an interbody
 fusion
 device or the introduction of a working instrument. The template
 assembly
 includes a tubular body sized for percutaneous introduction into a
 patient and advancement to an affected intervertebral ***disc***
 An
 elongated shaft slidably extends through the tubular body and is
 threadedly engaged to the tubular body at its proximal end so that
 rotation of the shaft relative to the tubular body advances the shaft
 through the body. A guide foot is pivotally connected to the distal
 end
 of the tubular body to be pivoted from a first position aligned with
 the
 tubular body to a second deployed position oriented substantially
 perpendicular to the tubular body. The guide body is pivoted from
 the
 first position to the second position by advancement of the
 elongated
 shaft through the tubular body. The guide body in one embodiment
 defines
 a bore through which the working tip of an electrosutary
 instrument
 extends to mark the ***disc*** ***annulus***. In another
 embodiment, the guide body itself defines an electrocautery
 projection
 The template assembly can be anchored to the affected
 disc by a
 guide wire extending through the tubular body and about which the
 template assembly can be rotated to make an additional mark on
 the
 annulus at a predetermined distance from the first mark.

L15 ANSWER 13 OF 31 MEDLINE
 AN 97273538 MEDLINE
 DN 97273538
 TI Retrolental fibrocartilaginous mass. Report of a case.
 AU Chen T Y, Lu T N
 CS Department of Neurosurgery, Chang Gung Medical College,
 Taoyuan, Taiwan.

SO SPINE. (1997 Apr 15) 22 (8) 920-3.
 Journal code: UXX ISSN: 0362-2436.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199709
 EW 19970901
 AB STUDY DESIGN: This is a report of a 63-year-old woman with
 a retrolental
 fibrocartilaginous mass and myelopathy. OBJECTIVE: To describe
 the
 pathophysiology of the retrolental fibrocartilaginous mass
 formation and
 its association with the C2-C3 ***disc***. SUMMARY OF
 BACKGROUND DATA:
 High cervical ***disc*** protrusion is an uncommon condition
 and
 presents even more rarely as a craniovertebral junction mass with
 spinal
 cord compression. Uncertainty remains regarding the etiology of its
 formation in the retrolental region. METHODS: The patient
 underwent
 surgical intervention with unilateral decompression and posterior
 C1-C2
 skeletal fusion with bony graft. RESULTS: On the basis of
 dynamic plain
 radiographs, magnetic resonance imaging, and surgical pathology,
 the
 origin of the mass may have been the C2-C3 ***disc***.
 CONCLUSIONS: We
 hypothesized that the mechanism underlying the posterior odontoid
 fibrocartilaginous mass with spinal cord involvement most likely
 originate
 upward migration of the C2-C3 ***annulus*** fragment to the
 atlantoaxial joint as a result of aging. Secondary fibrocartilaginous
 metaplasia plays a major role in creating such ***disc***-like
 material. To prevent unrecoverable myelopathy, early detection and
 anterior decompression with posterior C1-C2 skeletal fixation and
 bony
 fusion are the best treatment methods.

L15 ANSWER 14 OF 31 MEDLINE DUPLICATE
 4
 AN 97379586 MEDLINE
 DN 97379586
 TI Preservation of anterior and posterior leaflet in mitral valve
 replacement
 with a tilting- ***disc*** valve [see comments].
 CM Comment in: Ann Thorac Surg 1998 Jun;55(6):1840-1
 Comment in: Ann Thorac Surg 1999 Jan;67(1):293-4
 AU Choh J H
 CS Department of Surgery, Sherman Hospital, Elgin, Illinois, USA.
 SO ANNALS OF THORACIC SURGERY. (1997 Jul) 64 (1) 271-3.
 Journal code: 683 ISSN: 0003-4975
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)

LA English
 FS Abstracted Index Medicus Journals; Priority Journals
 EM 199710
 AB An operative technique for mitral valve replacement with
 preservation of
 chordae tendineae to both the anterior and posterior leaflets is
 described. The anterior mitral valve leaflet is completely detached
 from
 the ***annulus*** and divided into three to four islands of
 tissue,
 each with attached chordae tendineae. These islands are transposed
 under
 the posterior leaflet and secured with 4-0 polypropylene sutures.
 The
 posterior leaflet is completely preserved with no division or
 manipulation. This technique allows safe ***implantation*** of
 tilting- ***disc*** or bileaflet prostheses with excellent
 preservation
 of left ventricular function.

L15 ANSWER 15 OF 31 MEDLINE
 AN 97283038 MEDLINE
 DN 97283038
 TI Intervertebral ***disc*** autografting in a bipedal animal
 model.
 AU Luk K D, Ruan D K, Chow D H, Leong J C
 CS Department of Orthopaedic Surgery, University of Hong Kong,
 China.
 SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH,
 (1997 Apr) (337) 13-26.
 Journal code: DFY. ISSN: 0009-921X.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Abstracted Index Medicus Journals; Priority Journals
 EM 19970801
 EW 19970801
 AB Fusion of the spine while restoring stability of the spinal
 segment, fails
 to preserve spinal mobility. Long term complications of accelerated
 degeneration in the neighboring segments have been reported. The
 present
 study explores the possibility of intervertebral ***disc***
 autografting in a bipedal animal model by isolating a lumbar
 disc
 together with the adjacent end plates and repositioning it with
 minimal
 internal fixation. Fourteen Rhesus monkeys were sacrificed at 2, 4,
 6, and
 12 months after surgery and the grafted discs were examined
 radiologically, biochemically, pathologically, and biomechanically.
 Healing of the bony end plate was seen between 2 to 4 months
 postoperatively. There was early loss of ***disc*** height at 2
 and 4
 months but there was a suggestion of some reconstitution up to 12
 months.
 There was minimal evidence of gross degeneration at all stages.

Gradual loss of water content was found in the ***annulus*** and the nucleus.

The nucleus pulposus seemed to be able to reaccumulate proteoglycan after an initial drop in the first 4 months. There was significant increase in hydroxyproline content in the ***annulus*** fibrosis and the nucleus pulposus. Biomechanically, the grafted ***disc*** showed hypermobility in the first 4 months but gradually became stabilized with time.

Results from this study suggested that a fresh intervertebral autograft could survive a period of ischemia. Although the physiology of the ***disc*** was deranged, it was able to preserve a certain degree of segmental mobility without sacrificing stability. Further studies are required to validate these results and the field of ***disc*** allografting should be explored.

L15 ANSWER 16 OF 31 INPADOC COPYRIGHT 2000 EPO

LEVEL 2

AN 40745391 INPADOC UP 20000828 UW 200034

TI PROSTHETIC ***IMPLANT*** FOR INTERVERTEBRAL SPINAL FUSION

IN BRANTIGAN JOHN W.

INS BRANTIGAN JOHN W

INA US

PA BRANTIGAN JOHN W.

PAS BRANTIGAN JOHN W

PAA US

TL English

LA English

DT Patent

PIT WO/3 SUBSEQUENT PUBL. OF THE INT. SEARCH REPORT

PI WO 9508964 A3 19950420

DS RW: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

W: AU CA JP

A1 WO 1994/US9649 A 19940907

PRA1 US 1993-123191 A 19930920

AB Block or plug ***implants*** provide weight-bearing support for adjacent vertebrae in a vertebral column while allowing sufficient area between and beside the plugs for packing of autologous bone graft to allow bony healing and fusion. The plugs have a laterally directed slot to allow ingrowth or blood supply from the side and to allow locking the permanent device in place with living bone. The plugs have a

patterned surface to grip the vertebrae. Plugs used for fusion in the L4-5 and L5-S1 levels are wedged-shaped to reproduce the normal shape of these discs, which are higher anteriorly than posteriorly. The height of the plugs is greater than the width. The ***implants*** are made of a biocompatible carbon fiber reinforced polymer of alternately made of traditional orthopaedic ***implant*** materials such as chrome cobalt, stainless steel or titanium. In the surgical procedure, undamaged ***annulus*** fibrous ***disc*** tissue connecting the adjacent vertebrae is preserved and a pair of side-by-side ***implant*** plugs are forced into side-by-side transverse channels in the adjoining vertebrae to stretch the remaining ***annulus*** and support body weight applied through the vertebrae. The plugs are bottomed in the channels on cortex bone and bone ingrowth and fusion is facilitated by packing a patient's own graft into the center of the plug and beside and between the two adjacent plugs.

L15 ANSWER 17 OF 31 MEDLINE

AN 95318567 MEDLINE

DN 95318567

TI An experimental study on preserving the intervertebral discs, in dog-prior to ***disc*** allografting

AU Wakabayashi K; Matsuzaki H

CS Department of Orthopaedic Surgery, Nihon University School of Medicine, Tokyo.

SO NIPPON SEIKIGAKA GAKKAI ZASSHI JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION, (1995 May) 69 (5) 311-21.

Journal code: JON ISSN: 0021-5325

CY Japan

DT Journal: Article, (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 199510

AB ***Disc*** grafting is a new surgical procedure that may be suitable for preserving mobility of the spine. This experimental study was designed to determine a method of favorably preserving a ***disc*** prior to allografting. The lumbar vertebrae of adult mongrel dogs were excised, regarded as the vertebral body. ***disc*** unit, and preserved at -80 degrees C, or at 4 degrees C. In the preservation at 4 degrees

C, UW solution, Euro-Collins solution, EP-II solution, Ham's F-12, or physiological saline solution was used for preservation. Isotopes were used for determining the activities of the ***disc*** cells. In the preservation at -80 degrees C, it was difficult to maintain the activity regardless of the preservation period. There was no difference among these preservative solutions in the preservation at 4 degrees C on the nucleus pulposus, but the 2-day preservation in UW solution provided the best results in terms of the ***annulus*** fibrosis. Based on the results of these experiments, at -80 degrees C it was difficult to maintain the activity of ***disc*** cells while at 4 degrees C the UW solution was the most effective for preserving the annulus fibrosis. However the period of preservation was very short, and a new method to enable longer periods of preservation should be developed.

L15 ANSWER 18 OF 31 MEDLINE

AN 95310310 MEDLINE

DN 95310310

TI A rare complication of mitral valve replacement: sudden cardiac death for immobilization of ***disc*** valve by an unwetted suture.

AU Actis Dato G M; Boggiolo G; Actis Dato A Jr; Cattaneo C; Di Summa M

CS Italian Institution of Cardiac Surgery, Molinette Hospital, Turin, Italy.

SO JOURNAL OF CARDIOVASCULAR SURGERY, (1995 Apr) 36 (2) 167-9

Journal code: HMF ISSN: 0021-9509

CY Italy

DT Journal: Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199509

AB ***Disc*** immobilization caused by an unwetted suture in a mitral valve prosthesis represents a rare extrinsic complication in heart valve replacement. We report a case of a 54-year-old white male who underwent mitral valve replacement because of a severe mitral regurgitation. A Bjork-Shiley tilting ***disc*** was ***implanted*** with interrupted "U" shaped 3/0 silk sutures. There were no complications and the patient was discharged in the 10th postoperative day. Twenty days

after surgery the patient died for acute pulmonary edema. Autopsy revealed an unreveled suture producing interference with the tilting ***disc*** as a cause of ***disc*** prosthesis immobilization in closed position.

The possible explanation of this rare complication is the combination between unreveled suture and the pleating held by Teflon sewing ring after restoring heart function. A flaccid heart can produce an overestimation of the ***annulus*** size and the valve ring can bring an anomalous interference with the valve mechanism. In conclusion ***disc*** immobilization by an unreveled suture is a complication that can occur very rarely but an accurate prevention must be warrant particularly with a tilting ***disc*** more than a becailed prosthesis.

L15 ANSWER 19 OF 31 MEDLINE

AN 95367733 MEDLINE

DN 95367733

TI Materials and design concepts for an intervertebral ***disc*** spacer.

II. Multidiameter composite design.

AU Vuono-Hawkins M, Langrana N A, Parsons J R, Lee C K, Zimmerman M C

CS University of Medicine and Dentistry of New Jersey, New Jersey Medical School, Section of Orthopaedic Surgery, Newark 07103, USA.

SO JOURNAL OF APPLIED BIO-MATERIALS. (1995 Summer) 6 (2) 117-23.

Journal code: BCT. ISSN: 1045-4861.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199511

AB The main function of the intervertebral ***disc*** is to transmit and attenuate compressive and torsional forces, and stabilize the intervertebral joint. Unfortunately, the ***disc*** may be displaced or damaged due to trauma or disease causing the nucleus to herniate and protrude into the vertebral canal or intervertebral foramen. Pressure on the spinal nerve may cause pain or paralysis in the area of its distribution. At present, the surgical procedures used to alleviate this condition include ***disc*** excision, and/or spinal fusion. A more desirable situation would involve removing the nucleus pulposus and part

or all of the ***annulus*** fibrosis and ***implanting*** a suitable biofunctional equivalent. Such a prosthesis should attenuate stresses and prevent abnormal stress at adjacent intervertebral joints.

Maintenance of normal ***disc*** height would prevent impingement of the posterior facet joints and facet joint syndrome. In a previous companion paper (J. Applied Biomater. 5:125-132, 1994), the mechanical behavior of ***disc*** prostheses manufactured from fiber reinforced, elastomeric thermoset resins were examined. In order to develop devices which were more practical from a manufacturing standpoint and extremely reproducible, the fiber reinforced thermoset resins were replaced by multi-diameter thermoplastic elastomeric materials. In the present paper, the mechanical properties of thermoplastic multicomponent designs have been investigated.

L15 ANSWER 20 OF 31 MEDLINE

AN 94157712 MEDLINE

DN 94157712

TI Mechanical evaluation of a canine intervertebral ***disc*** spacer: in situ and in vivo studies.

AU Vuono-Hawkins M, Zimmerman M C, Lee C K, Carter F M, Parsons J R, Langrana N A

CS Osteonics Corporation, Allendale, New Jersey.

SO JOURNAL OF ORTHOPAEDIC RESEARCH. (1994 Jan) 12 (1) 119-27.

Journal code: JIQ. ISSN: 0736-0266.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199406

AB An elastomeric intervertebral ***disc*** spacer with hydroxyapatite ingrowth surfaces was ***implanted*** in a canine model. We studied (a) the mechanical behavior of motion segments at time 0 and at 3, 6, and 12 months and (b) the effect of the interface between the spacer and vertebral bone on ***implant*** stability and bone ingrowth. A polymer spacer was designed with compressive and torsional properties similar to those of the isolated canine lumbar ***disc***. ***Implantation*** of the spacer in canine cadaver motion segments permitted in situ biomechanical evaluation at time 0. An in vivo study

permitted continuous neurological monitoring of animals, with evaluation of mechanical behavior, stability, and ingrowth at 3, 6, and 12 months. Mechanical testing of cadaver motion segments with the spacer in situ resulted in decreased compressive and torsional stiffnesses, averaging 25 and 42%, respectively. This decrease was due to a combination of the surgical insult to the ***annulus*** and decontamination of adjacent vertebral endplates. In the in vivo study, all 12 animals tolerated the surgery well and none had permanent neurological impairment. The measured parameters indicated that behavior of the spacer-motion segment composite appeared to return to normal within 3-6 months. However, despite use of a porous hydroxyapatite on the ***implant*** surface, there was no significant bone ingrowth. Instead, a layer of dense fibrous connective tissue was formed at the spacer-vertebral bone interface. Early migration of five of the 12 spacers resulted in eccentric loading patterns with consistent reactive osteophyte formation.

L15 ANSWER 21 OF 31 BIOSIS COPYRIGHT 2000 BIOSIS

AN 1993:384597 BIOSIS

DN PREVI99396059897

TI Repair of intervertebral discs of rabbits evaluated histologically for results with trial of temporary 'ectopic' placement in the same rabbits.

AU Funakoshi, Koichi

CS Dep. Orthopaedic Surg., Osaka City Univ. Med. Sch., Osaka Japan

SO Journal of the Osaka City Medical Center, (1992) Vol. 41, No. 2 PART 2, pp. 569-582.

ISSN: 0386-4103.

DT Article

LA Japanese

SL Japanese

AB ***Disc*** herniation is main cause of lumbago, but few reports describe the repair of intervertebral discs. I studied the repair of intervertebral discs and whether the surroundings of the ***disc*** during repair affected results. Sixty-five rabbits weighing about 3 kg were anesthetized with intravenous injections of pentobarbital sodium. A midabdominal incision and transabdominal approach to the ventral side of about five lumbar vertebral bodies were made. One of two surgical

procedures was followed. In one, a wedge-shaped part of the ***annulus*** was removed from the ventral part of three or four discs.

The ***annulus*** was cut transversally into two pieces, which were connected with sutures or fibrin glue. The attached annuli were placed for some time in subcutaneous tissue, abdominal cavity, extraperitoneal space, or a filter-walled chamber placed in the abdominal cavity. In the second,

an ***annulus*** was ***transplanted*** into another intervertebral ***disc***. A transverse incision was made into the ventral part of a lumbar intervertebral ***disc*** and the nucleus was removed. Some discs were left after the ***transplantation*** without further treatment, and other discs were fixed with a staple, thread, or wire to prevent shifting. Histological examinations were done in both groups on days 4 to 528 after surgery. After the first procedure, most sutured or glued parts of annuli had joined to each other by two weeks

after surgery except in the group with a chamber in the abdomen, in which there was partial or no repair. Annuli grafted in the second procedure into lumbar discs were held on by an outer bridge of cartilage cells originating from the epiphysis, but adjoining surfaces of the grafted wedge and the recipient ***disc*** had not grown together at all. At the same time, cells from the central part of the ***disc*** had moved into the spaces between the grafted wedge and the recipient ***disc***, preventing connection of the surfaces. In half of the discs incised and fixed, the adjoining surfaces were repaired. The results showed that discs have an intrinsic ability to repair themselves, and that extrinsic factors such as connective tissue are needed for repair. An incised intervertebral ***disc*** can be repaired if that part of the spine is fixed and the discs are in close apposition.

L15 ANSWER 22 OF 31 MEDLINE DUPLICATE
AN 92173641 MEDLINE
DN 92173641
TI Preservation of all chordae tendineae and papillary muscle during mitral valve replacement with a tilting ***disc*** valve.

AU Feikes H L, Daugherty J B, Perry J E, Bell J H, Hieb R E, Johnson G H
CS Cardiovascular Surgery Associates, Las Vegas, NV 89109
SO JOURNAL OF CARDIAC SURGERY, (1990 Jun) 5 (2) 81-5.
Journal code: BEN, ISSN: 0886-0440.

CY United States
DI Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199206
AB Mitral valve replacement was performed in 21 patients using a surgical technique that preserves the entire papillary muscle and chordal apparatus. With this technique, the anterior mitral leaflet is split from the center of the free edge toward the ***annulus***. Bilateral incisions are made from the proximal end of this split to the two commissures, detaching the anterior leaflet from the ***annulus***.

These two halves of the leaflet, with all chordae intact (corresponding to the anterolateral and posteromedial papillary muscles), are judiciously trimmed to remove areas of leaflet untethered by chordae tendineae and (when necessary) fibrous thickening, then swung posteriorly and sutured to the posterior mitral ***annulus*** using mattress sutures with pledgets. This surgical technique is expected to favor the preservation of left ventricular function and avoid occurrence of irreversible left ventricular dilation/dysfunction, and has been used successfully for calcific and degenerative etiologies, using both tilting ***disc*** valves and porcine bioprostheses. It is especially useful in the ***implantation*** of tilting ***disc*** and bileaflet mechanical prostheses because anterior subvalvular chordae tissue may interfere with the ***disc*** excursion and relocated to the posterior leaflet ***annulus***.

L15 ANSWER 23 OF 31 EMBASE COPYRIGHT 2000 ELSEVIER SCI B.V.
AN 89028704 EMBASE
DN 1989028704
TI Doppler color flow evaluation of prosthetic mitral valves: Experimental epicardial studies.
AU Jones M, Eido E E, CS Surgery Branch, National Heart, Lung, and Blood Institute, National Institutes of Health, Bethesda, MD 20892, United States
SO Journal of the American College of Cardiology, (1989) 13/1 (234-240)
ISSN: 0735-1097 CODEN: JACCDD
CY United States

DT Journal
FS 018 Cardiovascular Diseases and Cardiovascular Surgery
LA English
SL English
AB More than 300 epicardial Doppler color flow mapping studies on 23 different types of clinical and preclinical valves were performed after ***implantation*** in the mitral position in sheep. The transducers were placed directly on the heart to obtain the greatest possible resolution. Studies were performed in each animal under different hemodynamic conditions by varying heart rate and cardiac output. Eighty-six valves were studied late (20 to 52 weeks), whereas the remainder were studied early (0 to 10 days) after operation. The valves included 3 types of ball and cage valves, 3 types of ***disc*** and cage valves, 7 types of tilting ***disc*** valves, 1 type of bileaflet hemidisc mechanical valve, 13 types of porcine aortic valves and 5 types of bovine pericardial valves. The results of these studies were compared with those obtained in 40 studies of 20 native mitral valves. Doppler color velocity/flow profiles were imaged in real time with simultaneous electrocardiographic gating, the aortic flow was also displayed for the timing of velocity/flow events. Native normal mitral valves had no in-orifice flow disturbances and laminar low velocity/flow directed toward the left ventricular apex. Ball and cage and ***disc*** and cage valves had high velocity peripheral jets and vortices of velocity/flow reversals distal to the occluders. Tilting ***disc*** valves had differing velocity/flow patterns determined by their orientation in the mitral ***annulus***.

Bileaflet hemidisc valves had three jets, which decayed 1.5 cm downstream. Porcine aortic and bovine pericardial bioprosthetic valves had high velocity, turbulent, nonaxysymmetric jets (more severe for the latter). These observations are similar and complementary to those obtained by in vivo flow visualization techniques and those obtained by laser Doppler anemometry. As such, they provide an important interface between the in vitro assessment of prosthetic valve function and the clinical utility of Doppler color velocity flow imaging technology.

L15 ANSWER 24 OF 31 MEDLINE DUPLICATE
8
AN 89068253 MEDLINE
DN 89068253
TI Internal deformations of intact and denuded human lumbar discs
subjected to compression, flexion, and extension loads.
AU Scroasi R E; Krag M H; Muller D L; Pope M H
CS McClure Musculoskeletal Research Center, Department of Orthopedics and Rehabilitation, University of Vermont, Burlington 05405.
SO JOURNAL OF ORTHOPAEDIC RESEARCH. (1989) 7 (1) 122-31.
Journal code: JIQ. ISSN: 0736-0266.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198903
AB Three rows of six evenly spaced 0.5 mm metal beads were
implanted
middigitally into the discs of ten L4-5 human lumbar motion segments. The intradiscal bead displacements in response to compression, flexion, and extension loads were obtained by digitizing the bead positions from sagittal plane radiographs taken before and during the load application.
Each ***disc*** was denuded and the loading process was repeated.
For the intact discs, in compression, the intradiscal bead displacements were predominantly anterior. In flexion, the beads in the center of the ***disc*** moved posteriorly whereas the beads closer to the periphery of the ***disc*** moved anteriorly. In extension, the central beads moved anteriorly and the beads closer to the periphery of the ***disc*** moved posteriorly. After denudation, the bead displacements for compression and flexion implied an inward bulging of the inner wall of the ***annulus***, despite outward bulging of the ***disc*** surface. We hypothesize that the inward bulging causes radial tensile stresses within the ***disc***, leading to disruption of adjacent layers of the ***annulus***.

CS Medical Incorporated, Inver Grove Heights, MN 55077, United States
SO Annals of Thoracic Surgery (1989) 48/4 SUPPL. (S61-S64).
ISSN: 0003-4975 CODEN: ATHSJK
CY United States
DT Journal
FS 006 Internal Medicine
018 Cardiovascular Diseases and Cardiovascular Surgery
027 Biophysics, Bioengineering and Medical Instrumentation
LA English
SL English
AB The Lillehei-Kaster (LK) cardiac valve was ***implanted*** by C.W. Lillehei in 1970, in an attempt to overcome the limitations of other valvular designs of the day. The LK valve consists of a free-floating, pivoting, ***disc*** made of pyrolytic carbon, which is inserted into an integrally machined titanium housing. The ***disc*** moves to an opening angle of 80 degrees, and is retained by two curved projections which extend above the valve. The hingeless ***disc***, which rotates freely within the housing, is one of the first attempts to achieve central flow. The overall profile was substantially reduced from earlier valve configurations to minimize the risk of anatomical interference. The ***disc*** configuration has been exceptionally durable, with only 1 case of ***disc*** fracture (which was successfully reoperated) reported in the literature out of more than 50,000 ***implants*** worldwide. The integrally machined titanium housing (no welds or solders) has had no structural problems through its 18-year history. The clinical results with this prosthesis are generally good. A recent study by Olesen and colleagues involving 876 patient-years in patients who received mitral valve ***implants*** between 1972 and 1980 showed 10-year freedom from valve-related morbidity and mortality to be 66%, and from thromboembolism, 76%. However, the in vivo hemodynamic performance of the LK valve has been poorer than anticipated. Various authors noted that high pressure gradients persist in smaller valves, especially in those patients with narrow aortic root. Nitter-Hauge and co-workers noted that the LK valve had a less favorable ratio of effective orifice area to tissue ***annulus*** diameter.

9
AN 88331019 MEDLINE
DN 88331019
TI Valve replacement with the tilting ***disc*** Sorin prosthesis in patients with narrow aortic ***annulus***
AU Calafiore A M; Santarelli P; Glicca F; Luciani N; Maddalena N; Palocci L; Pessali F
CS Department of Cardiac Surgery, University of Chieti, Italy.
SO JOURNAL OF CARDIOVASCULAR SURGERY. (1988 Jul-Aug) 29 (4) 387-91.
Journal code: HMF. ISSN: 0021-9509.
CY Italy
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198812
AB The Authors summarize their 5-year experience of the clinical use of the Sorin tilting ***disc*** prosthesis in 40 patients (group A) with narrow aortic ***annulus***, compared with a control group (group B: 116 patients) where a larger Sorin prosthesis was ***implanted***. Follow-up lasted from 1 to 60 months, with a mean of 25.6 +/- 12.3 in group A and 20.4 +/- 11.9 in group B. Early and late mortality were low: 1/40 and 2/39 (2.5 and 5.1%) in group A and 4/16 and 9/112 (3.4 and 8.0%) in group B (p = NS); only two deaths, one in each group, were prosthesis-related. Actuarial survival was comparable: 91.2% (CL: 96.3-86.1%) in group A and 78.0% (CL: 87.6-68.4%) in group B, as were probability of being event-free and alive, non-reoperated and with few or no symptoms [group A: 61.7% (CL: 72.4-51.0%) and 77.4% (CL: 85.9-68.9%) respectively; group B: 78.8% (CL: 83.4-74.2%) and 61.1% (CL: 85.9-68.9%) respectively]. The Authors conclude that the Sorin tilting ***disc*** prosthesis is a reliable valve substitute in the narrow aortic ***annulus***; they recommend that enlargement procedures should be confined only to patients with ***annulus*** size less than 19 mm.

L15 ANSWER 27 OF 31 EMBASE COPYRIGHT 2000
ELSEVIER SCI. B. V.
AN 88057126 EMBASE
DN 1988057126
TI [Bioprosthesis versus mechanical heart valve: a hydrodynamic comparison of prostheses of same size]
BIOPROTHESE VERSUS MECHANISCHE HERZKLAPPE:

EIN HYDRODYNAMISCHER VERGLEICH VON PROTHESSEN GLEICHER GROSSE.

AU Heiliger R., Lambert H., Kinnale C., Mittermayer C.
CS Rheinisch-Westfälische Technische Hochschule Aachen,
Aachen, Germany
SO Herz Kreislauf (1988) 20(2) 43-53
ISSN: 0046-7324 CODEN: HZKLAV

CY Germany

DT Journal

FS 018 Cardiovascular Diseases and Cardiovascular Surgery
027 Biophysics, Bioengineering and Medical Instrumentation

LA German

SL English

AB In order to compare the hydrodynamic effectiveness of
mechanical
prostheses and bioprostheses for ***implantation*** in the

mitral
position, eight heart valve prostheses have been pulsatingly
perfused in a
mock circulation under physiological conditions. Cardiac output

was varied
between 2 l/min and 6 l/min. Reflux and orifice area were
measured

insufficiency, mean orifice area, discharge coefficient, performance
index

and efficiency index were calculated. Five mechanical prostheses,
two

bileaflet valves (St. Jude Medical; Duromedics) and three tilting
disc valves (Bjork-Shiley SD, Bjork-Shiley CCD,

Bjork-Shiley
Monostitut) as well as three bioprostheses, one pericardial xenograft
(Jonescu-Shiley Standard) and two porcine bioprostheses (Hancock

342,
Xenomedica XAG 100) with an ***annulus*** diameter of 31

mm have been
investigated. With values of insufficiency between 2.0 and 6.2%

the
bioprostheses show lower insufficiency than the mechanical

prostheses. The
orifice areas of the mechanical prostheses up to 480 mm² are

distinctly
larger than the orifice areas of the bioprostheses. Since discharge

coefficient and performance index are dependent on the opening
behaviour
of the prostheses, the mechanical prostheses show better values

than the
bioprostheses. Efficiency index includes both area and

regurgitation.
Although the mechanical prostheses show higher insufficiency, the

efficiency index EI is higher than that of the bioprostheses because
of

the distinctly larger orifice areas: St. Jude Medical: EI = 0.36, +-
0.05; Duromedics: EI = 0.29, +- 0.01; Bjork-Shiley SD: EI = 0.21

+,
0.03; Bjork-Shiley CCD: EI = 0.22, +- 0.03; Bjork-Shiley

Monostitut EI =
0.24, +- 0.02; Jonescu-Shiley Standard: EI = 0.21, +- 0.03;

Hancock 342:

EI = 0.16, +- 0.03; Xenomedica XAG 100: EI = 0.12, +- 0.04.

Although the

mechanical valves present a better efficiency index, none of the two
groups of prostheses is hydrodynamically definitely superior. The
advantage of the bioprostheses is the low regurgitation. The
mechanical

prosthesis shows as its hydrodynamic advantage an orifice area
much larger
than that of the bioprostheses. Within the two groups of prosthesis,

the
mechanical bileaflet valves show larger orifice areas, i.e. smaller

pressure drops and higher values of insufficiency when compared
with the

tilting ***disc*** valves. Within the groups of bioprostheses,
the

pericardial xenograft is hydrodynamically superior to the porcine
bioprostheses because this valve type shows similar values of
regurgitation but larger orifice areas.

L15 ANSWER 28 OF 31 MEDLINE DUPLICATE

10
AN 88113346 MEDLINE

DT 88113346
TI [Comparative study of mechanical heart valves for
implantation

in mitral position].

Vergleichende Untersuchung mechanischer Herzklappen zur
implantation in Mitralposition.

AU Heiliger R., Lambert H., Gels J., Mittermayer C.
CS Rheinisch-Westfälischen Technischen Hochschule, Aachen..

SO HERZ (1987 Dec) 12 (6) 405-12
Journal code: F88 ISSN: 0340-9937

CY GERMANY, WEST: Germany, Federal Republic of
DT Journal, Article: (JOURNAL ARTICLE)

LA German

FS Priority Journals
EM 198805
AB For hydrodynamic comparison of mechanical heart valves, three

tilting
disc valves (Bjork-Shiley SD, Bjork-Shiley CCD,

Bjork-Shiley
Monostitut) and two bileaflet valves (St. Jude Medical,

Duromedics) with
annulus diameter DA = 31 mm were perfused in a mock

circulation in
mitral position. Flow, pressure, and orifice area were measured

during
pulsatile flow. Insufficiency, maximal orifice area, mean orifice

area,
performance index and efficiency index were calculated. The tilting

bileaflet
disc valves show distinctly lower orifice areas than the

Bjork-Shiley
prostheses varies between 22.78 +/- 7.77 mm² and 243.21 +/-

6.21 mm². The

mean value of Annax of the Duromedics prosthesis is 295.45 +/-
7.76 mm² and
that of the St. Jude Medical prosthesis is 477.43 +/- 11.32 mm².

The
calculated mean orifice areas A of the bileaflet valves are also

higher
than those of the tilting ***disc*** valves. The mean values of

A are:
Bjork-Shiley SD: 183.55 +/- 10.03 mm²; Bjork-Shiley CCD:

206.30 +/- 8.62
mm²; Bjork-Shiley Monostitut: 210.12 +/- 4.74 mm²; St. Jude

Medical: 398.69
+/- 19.55 mm²; Duromedics: 262.90 +/- 6.84 mm². The

performance index PI
is qualitatively identical with the values of the mean orifice area A

because in this study only heart valves of the same size were
investigated. For calculation of insufficiency I the entire reflux

volume
VR including closing volume VS and leakage volume VL was

used, thus,
insufficiency was also determined in intact prostheses. The values

of
insufficiency of the mechanical valves investigated are higher for

the
bileaflet valves than for the tilting ***disc***

valves (ABSTRACT
TRUNCATED AT 250 WORDS)

L15 ANSWER 29 OF 31 MEDLINE DUPLICATE

11
AN 84061951 MEDLINE

DN 84061951

TI Effects of the ablation of the nucleus pulposus on the vibrational
behavior of the lumbosacral hinge.

AU Quandt P., Pelletier L., Linstead F., Valey B.
SO JOURNAL OF BIOMECHANICS (1983) 16 (10) 777-84.

Journal code: HJF ISSN: 0021-9290.

CY United States
DT Journal, Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 198403

AB This study was designed to investigate the respective damping
properties
of the ***annulus*** fibrosis and nucleus pulposus of the

intervertebral ***disc*** during propagation of vibration waves
through the osteoligamentous-muscular axis of the spine. The study

was
conducted on a 8-10 kg deeply anesthetized baboon. In the first

surgical
phase five accelerometers were ***implanted*** in the first

sacral
vertebra and on the anterior side of the four lower lumbar vertebrae.
The
biomechanical animal was placed in a restraining chair and
exposed to
narrow-bandwidth (0-100 Hz) 0.16 G RMS random vibration. Once

data was recorded, the nuclei pulposi of the studied discs were removed by suction, the surrounding annuli remaining intact. The still deeply anesthetized animal was again exposed to the same 0-100 Hz, 0.16 G RMS vibration. Results were analyzed and their reproducibility was tested on three animals.

L15 ANSWER 30 OF 31 ENBASE COPYRIGHT 2000

ELSEVIER SCI. B. V.

AN 80023176 EXBASE

DN 1980023176

TI Echocardiographic evaluation of Bjork-Shiley prosthetic heart valves.

AU Koide Y.

CS II Dept. Surg., Sch. Med., Tokushima Univ., Tokushima, Japan

SO Shikoku Aca Medica, (1979) 33/3-4 (166-179)

CODEN: SKIZAB

CY Japan

DT Journal

FS 019 Rehabilitation and Physical Medicine

018 Cardiovascular Diseases and Cardiovascular Surgery

LA Japanese

SL English

AB For this study the ***implanted*** Bjork-Shiley prosthetic valves of

45 patients, who underwent MVR, AVR, MVR and AVR, and MVR and TVR, were

echocardiographically examined. The echograms of

implanted B-S

valves with normal function were as follows: The B-S mitral valve showed

two parallel echoes in diastole and resembled the echo-pattern of

the anterior mitral valve leaflet in the patients with mild or moderate mitral

stenosis.

The B-S aortic valve showed two parallel echoes between the anterior and posterior aortic walls in systole. These echoes

disappeared in diastole. The tricuspid B-S valve showed the same pattern of

B-S mitral valves and resembled the echo-pattern of mitral stenosis. According

to the model experience in vitro, the differences of valve echoes between

B-S mitral and the aortic valve seemed to depend upon the direction of

the ultrasonic beam. A paradoxical motion of the interventricular

septum was observed in all cases of valve replacement soon after the

resuscitation of

the heart during operation. Through the echocardiographic findings, such

as round E-point, thick echo of mitral ***annulus***, reduction

of diastolic descent rate, and decreased valve excursion, the thrombosed B-S

mitral valve was diagnosed and successfully replaced. In some cases, para-prosthetic leakage was echocardiographically suspected due to

a lack of paradoxical motion of the interventricular septum. In a patient of

early postoperative cardiac tamponade after MVR, the diastolic re-opening

of ***disc*** echo, which was like the echopattern of the constrictive

pericarditis

led to the diagnosis. Echocardiographic observation is especially useful for the detection of the dysfunction of the B-S prosthetic valve and other postoperative complications.

L15 ANSWER 31 OF 31 MEDLINE

AN 77170613 MEDLINE

DN 77170613

TI Prosthetic valves 1977: a retrospective analysis and a look to the future.

AU Savage L R

SO MEDICAL INSTRUMENTATION, (1977 Mar-Apr) 11 (2)

107:9

Journal code: M12, ISSN: 0004-5446,

CY United States

DT Journal, Article: (JOURNAL ARTICLE)

LA English

EM 197708

AB Experimental and clinical studies that we published in 1972 indicated that

the ability of man to extend tissue inward from the valve

attachment site is limited to few millimeters, and that the cardiovascular wall/valve

body

spatial relationships are critically important in prevention of thrombotic

complications. Since 1972, clinical observations have supported these

conclusions. Cloth-covered valve prostheses in man have failed to become

completely covered by tissue. The tilting ***disc*** valve (Bjork-Shiley) has proved to be an advance over the ball design.

However, for maximum hydraulic efficiency, the 60 degrees opening of the

prosthesis must be augmented by positioning the valve in harmony with the

tilt of the ***annulus*** into which is ***implanted***. Currently, we

are studying the functional significance (gradient and turbulence) of various

positional relationships of the opened ***disc*** to the tilt of the

anatomic valve ***annulus***. Changing the orientation of the Bjork-Shiley mitral prosthesis, for instance, can mean a difference

in

functional opening ranging from 30degrees to 90degrees, and from 45degrees to 75degrees for the aortic valve.

=> file medline

=> s idiopathic scoliosis/ab,bi

38410 IDIOPATHIC/BI

8947 SCOLIOSIS/BI

5401617 AB/FA

1078 IDIOPATHIC SCOLIOSIS/AB

((IDIOPATHIC(W)SCOLIOSIS)BI (L) AB/FA)

38410 IDIOPATHIC/BI

8947 SCOLIOSIS/BI

1339 IDIOPATHIC SCOLIOSIS/BI

((IDIOPATHIC(W)SCOLIOSIS)BI)

L16 1339 IDIOPATHIC SCOLIOSIS/AB,BI

=> s il16 and intervertebral disc/ab,bi

14933 INTERVERTEBRAL/BI

31068 DISC#/BI

5401617 AB/FA

1839 INTERVERTEBRAL DISC#/AB

((INTERVERTEBRAL(W)DISC#)BI (L) AB/FA)

14933 INTERVERTEBRAL/BI

31068 DISC#/BI

2306 INTERVERTEBRAL DISC#/BI

((INTERVERTEBRAL(W)DISC#)BI)

L17 11 L16 AND INTERVERTEBRAL DISC#/AB,BI

=> d l - bib ab

YOU HAVE REQUESTED DATA FROM 11 ANSWERS - CONTINUE? Y/(N)/Y

L17 ANSWER 1 OF 11 MEDLINE

AN 95053115 MEDLINE

DN 95053115

TI Experimental scoliosis in the rat spine induced by binding the

processes

AU Kasuga K

CS Department of Orthopaedic Surgery, Shinshu University School

of Medicine,

Nagano, Japan.

SO NIPPON SEIKEIGAKA GAKKAI ZASSHI, JOURNAL OF THE JAPANESE ORTHOPAEDIC

ASSOCIATION, (1994 Sep) 68 (9) 798-807.

Journal code: JON, ISSN: 0021-5325.

CY Japan

DT Journal, Article: (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals
 EM 199302
 AB The effects of limitation of spinal mobility in forward flexion on the development of scoliosis was studied in experimental animals. The spinous processes of three lumbar vertebrae of young female rats were sutured together to make persistent limitation in the forward flexion of the spine. The lumbar vertebrae of rats, which normally are kyphotic in their profile, frequently became flattened or lordotic after the operation. Scoliosis with a primary curve at the sutured site was produced, although the curve magnitude was mild in 38% of 73 operated rats, and appeared more frequently in those which had more limitation in the spinal mobility at the sutured vertebrae than in those with less limitation. In histological examinations, the coronal sections of vertebral specimens of scoliotic animals demonstrated wedge-shaped ***intervertebral*** discs*** deviation in the vertebral nucleus pulposus toward the convex side of scoliosis, and a degeneration in the annulus fibrosus. Thickening of cartilaginous endplates on the convex side and a rupture in them on the concave side were observed in some of the animals. These findings indicated that the experimentally produced scoliosis was structural. This experimental study suggested that a limitation in the spinal mobility in forward flexion has a causative effect on the development and progress of ***idiopathic*** scoliosis***.

L17 ANSWER 2 OF 11 MEDLINE
 AN 92199626 MEDLINE
 DN 92199626
 TI Measurement variations in scoliotic angle, vertebral rotation, vertebral body height, and ***intervertebral*** disc*** space height.
 AU Ylikoski M, Tallroth K
 CS Department of Radiology, Orthopaedic Hospital of the Invalid Foundation
 Helsinki, Finland
 SO JOURNAL OF SPINAL DISORDERS. (1990 Dec) 3 (4) 387-91.
 Journal code: BEQ ISSN: 0895-0385.
 CY United States
 DT Journal: Article. (JOURNAL ARTICLE)
 LA English
 FS Priority Journals

EM 199207
 AB Thirty consecutive posteroanterior and lateral radiographs of patients with adolescent ***idiopathic*** scoliosis*** with a mean Cobb angle of 24.4 degrees were read. In measuring the scoliotic angle, the interobserver error (SD) was 2.8 degrees and the intraobserver, 1.8 degrees. Rotation of the apical vertebra was estimated by measuring the translation of the pedicle on posteroanterior radiographs. For vertebral rotation, the interobserver measurement error (SD) was 3.4 and the intraobserver, 1.8%. The height of the apical vertebral body and the ***intervertebral*** disc*** space next inferior to it were measured on lateral radiographs as the anterior angles of the diagonals of the respective body or disc space. In measuring the vertebral body height, the interobserver error (SD) was 3.2 and the intraobserver, 2.6 degrees, and in measuring the ***intervertebral*** disc*** space height, the interobserver error was 2.4 and the intraobserver, 1.8 degrees. The angles can be transformed to a corresponding height/length ratio by a simple trigonometrical formula.

L17 ANSWER 3 OF 11 MEDLINE
 AN 92116596 MEDLINE
 DN 92116596
 TI [Proton spin tomography in children and adolescents with so-called ***idiopathic*** scoliosis***] Kernspintomographische Untersuchungen bei Kindern und Jugendlichen mit sogenannter idiopathischer Skoliose.
 AU Schneider F, Niehard F U, Obelater N, Schiek H, Glas K, Carstens C
 CS Abteilung für Orthopädie im Kindesalter, Universitätsklinik Heidelberg.
 SO ZEITSCHRIFT FÜR ORTHOPÄDIE UND IHRE GRENZGEBIETE. (1991 Nov-Dec) 129 (6) 525-30.
 Journal code: XZ4 ISSN: 0044-3220
 CY GERMANY: Germany, Federal Republic of
 DT Journal: Article. (JOURNAL ARTICLE)
 LA German
 FS Priority Journals
 EM 199204
 AB Somato-sensory evoked potentials (SSEP) were found to be pathological mostly in the lower extremities in 26 out of 45 children suffering from so called ***idiopathic*** scoliosis***. We examined the

vertebral spine and the spinal cord of 8 of them (with controlled SSEP-findings) by use of conventional MRI-imaging and (where necessary) 3-dimensional-data-set following the Fourier-procedure. 6 of the 8 children showed alterations as follows: 1. A lipoma spreading partly extra-, partly intraspinaly; 2. Subligamentous protrusions of the ***intervertebral*** disc*** (2 patients); 3. Dysraphic processes (2 patients); 4. An abnormally cranial ending myelon surrounded by a widened spinal channel.
 The findings are demonstrated and discussed concerning the questions whether the pathological SSEP and, furthermore, the deformity of the vertebral spine could be explained thereby. We are at least able to prove that some of the children with so called ***idiopathic*** scoliosis*** show pathological evoked potentials and MRI-findings.

L17 ANSWER 4 OF 11 MEDLINE
 AN 92044173 MEDLINE
 DN 92044173
 TI Systemic abnormalities in ***idiopathic*** scoliosis***
 AU Worthington V, Shambaugh P
 CS Northlakes, Washington, DC 20036.
 SO JOURNAL OF MANIPULATIVE AND PHYSIOLOGICAL THERAPEUTICS. (1991 Oct) 14 (8) 467-71. Ref: 84
 Journal code: IY5 ISSN: 0161-4754.
 CY United States
 DT Journal: Article. (JOURNAL ARTICLE)
 General Review. (REVIEW)
 (REVIEW, TUTORIAL)
 LA English
 FS Priority Journals
 EM 199202
 AB Sixty-five to ninety percent of all scoliosis is of unknown origin or idiopathic. During the last 30 yr, researchers worldwide have found a variety of abnormalities in tissues throughout the body including peripheral muscle, skin, ligaments, platelets, bone, ***intervertebral*** disc***, serum and urine. The primary defects appear to be related to collagen and proteoglycan synthesis. The systemic abnormalities seen in ***idiopathic*** scoliosis*** cannot be explained by the biomechanical effects of the curvature.

L17 ANSWER 5 OF 11 MEDLINE
 AN 92024425 MEDLINE

DN 92024425
 TI [How idiopathic is ***idiopathic*** ***scoliosis*** ?
 Results of
 neurological studies with somatosensory evoked potentials (SSEP)
 in
 children and adolescents].
 Wie idiopathisch ist die idiopathische Skoliose? Ergebnisse
 neurologischer
 Untersuchungen mit somatosensorisch evozierten Potentialen
 (SSEP) bei
 Kindern und Jugendlichen.
 AU Schneider E, Niehard F U, Schiek H, Carstens C, Pfeil J
 CS Stiftung Orthopädische Universitätsklinik Heidelberg.
 SO ZEITSCHRIFT FÜR ORTHOPÄDIE UND IHRE
 GRENZGEBIETE. (1991 Jul-Aug) 129 (4)
 355-61.
 Journal code: XZA. ISSN: 0044-3220.
 CY GERMANY: Germany, Federal Republic of
 DT Journal: Article. (JOURNAL ARTICLE)
 LA German
 FS Priority Journals
 EM 199201
 AB About 90% of all the scolioses are called "idiopathic". Various
 neurological diseases (for example poliomyelitis, etc.) are
 frequently
 accompanied by deformities of the spine. The so-called
 somatosensory
 evoked potentials are at our disposal being a very sensitive and a
 non-problematic neurological diagnostic tool. Formation of the
 question:
 Are there clinically non-detectable neurological changes
 demonstrable by
 use of evoked potentials in children with so-called
 idiopathic
 scoliosis ? 45 non-operated patients suffering from
 scoliosis and
 21 healthy children were examined clinically, neurologically, and
 by use
 of evoked potentials. Results: 36/45 children with idiopathic
 scoliosis
 showed pathological evoked potentials (right-left-side-difference
 concerning latency and amplitudes of the potentials and generally
 delayed
 transmission from peripheral nerves to the somatosensory cortex).
 mostly
 concerning the lower extremities 19/45 children showed normal
 evoked
 potentials (EP). There was no correlation between EP and direction
 respectively degree of the scoliosis. Neurological afflictions mostly
 located caudally of the cervical spine are to be discussed (for
 example
 protrusion of the ***intervertebral*** ***disc***
 dysraphic
 processes etc.).
 L17 ANSWER 6 OF 11 MEDLINE
 AN 87196759 MEDLINE

DN 87196759
 TI A histopathological study on the ***intervertebral***
 disc
 of idiopathic and paralytic scoliosis-abnormalities in transition
 from
 the notochordal nucleus to the fibrocartilaginous nucleus
 AU Tanaka A
 SO NIPPON SEIKEIGAKA GAKKAI ZASSHI. JOURNAL OF
 THE JAPANESE ORTHOPAEDIC
 ASSOCIATION. (1986 Dec) 60 (12) 1227-38.
 Journal code: JON. ISSN: 0021-5325.
 CY Japan
 DT Journal: Article. (JOURNAL ARTICLE)
 LA Japanese
 FS Priority Journals
 EM 198708
 AB To elucidate morphologic events, 105 ***intervertebral***
 disc in 22 patients with ***idiopathic***
 scoliosis
 and 14 in four patients with paralytic scoliosis were
 histopathologically
 compared with 13 control ***intervertebral*** ***disc***
 in 13
 cases, including three fetuses. In control ***intervertebral***
 disc, the notochordal area became smaller with age, and
 was
 almost completely occupied by fibrocartilaginous matrix at 16 years
 of age
 or more. In ***intervertebral*** ***disc*** of patients
 aged
 19-33 with ***idiopathic*** ***scoliosis***, many
 notochordal
 cells were seen and many areas without fibrocartilaginous matrix
 were
 found. In contrast, in ***intervertebral*** ***disc*** of
 patients aged 21-35 with paralytic scoliosis, there was no
 notochordal
 cells or defect of the fibrocartilaginous matrix. The results suggest
 an
 impairment of transition from the notochordal nucleus to the
 fibrocartilaginous nucleus in ***intervertebral***
 disc in
 patients with ***idiopathic*** ***scoliosis***, and that such
 abnormalities are related to the onset of ***idiopathic***
 scoliosis.
 L17 ANSWER 7 OF 11 MEDLINE
 AN 83186177 MEDLINE
 DN 83186177
 TI The effect of the adolescent growth spurt on early posterior spinal
 fusion
 in infantile and juvenile ***idiopathic*** ***scoliosis***
 AU Hehl F L, Melkaser M J
 SO JOURNAL OF BONE AND JOINT SURGERY. BRITISH
 VOLUNTE. (1983 May) 65 (3)
 247-54.
 Journal code: HN7. ISSN: 0447-9076.

CY ENGLAND: United Kingdom
 DT Journal: Article. (JOURNAL ARTICLE)
 LA English
 FS Abstracted Index Medicus Journals; Priority Journals
 EM 198308
 AB Twenty-four children with infantile or juvenile
 idiopathic
 scoliosis had their spines corrected and solidly fused
 posteriorly
 before the age of eleven years. The growth of the fusion area was
 then
 accurately measured for a mean of 4.5 years during the adolescent
 growth
 spurt. During this period all longitudinal growth in the posterior
 elements ceased. The vertebral bodies continued to grow anteriorly,
 but
 the thick posterior fusion prevented the development of a lordosis.
 Initially the anterior growth was accommodated by narrowing of the
 intervertebral ***disc*** spaces, but eventually the
 vertebral
 bodies bulged laterally towards the convexity and pivoted on the
 posterior
 fusion, giving rise to loss of correction, increasing vertebral rotation
 and recurrence of the rib hump.
 L17 ANSWER 8 OF 11 MEDLINE
 AN 81008161 MEDLINE
 DN 81008161
 TI Histopathological study on the ***intervertebral***
 disc of
 idiopathic ***scoliosis*** (author's transl)
 AU Nakamura T
 SO NIPPON SEIKEIGAKA GAKKAI ZASSHI. JOURNAL OF
 THE JAPANESE ORTHOPAEDIC
 ASSOCIATION. (1980 Jun) 54 (6) 523-38.
 Journal code: JON. ISSN: 0021-5325.
 CY Japan
 DT Journal: Article. (JOURNAL ARTICLE)
 LA Japanese
 FS Priority Journals
 EM 198101
 AB To elucidate morphologic events, 74 ***intervertebral***
 disc
 removed by Dwyer instrumentation from 15 scoliotic patients and
 10
 intervertebral ***disc*** by anterior spinal wedge
 osteotomy
 from 10 patients were examined, along with 33
 intervertebral
 disc from autopsy cases. Paraffin sections were stained
 with PAS.
 toluidine blue and alcian blue in addition to routine stainings. The
 results obtained are as follows: (1) Noticeable differences in
 stainability of cartilaginous plate, cleft and vacuolation of the
 matrix
 of annulus fibrosus and cellular decrease were obtained in nucleus
 pulposus in scoliotic patients as compared with controls. Chordal

cells in nucleus pulposus were found in 30% of scoliotic patients and 9% of controls. (2) In the apical discs, ossification gap of cartilaginous plate decreased, while cleft and vacuolation of annulus fibrosus and formation of cartilage cell cluster in nucleus pulposus were increased. (3) Irregular fiber running, cleft and vacuolation of annulus fibrosus were found in scoliotic patients with the curvature of the spine by more than 60 degrees. Matrix degeneration of cartilaginous plate and irregular fiber running of annulus fibrosus were common in scoliotic patients with higher rotation than grade III of Nash & Moe classification. Conversely, chordal cells in nucleus pulposus were not common in higher rotation cases. Chordal cell remnants were prominent in nucleus pulposus in scoliotic patients. This suggests that some abnormalities occurring during the maturation process of nucleus pulposus are related to the evolution of scoliosis.

L17 ANSWER 9 OF 11 MEDLINE
AN 80050010 MEDLINE
DN 80050010
TI The collagen of the ***intervertebral*** ***disc*** in adolescent
idiopathic ***scoliosis***
AU Bushell G R, Ghosh P, Taylor T K, Sutherland J M
SO JOURNAL OF BONE AND JOINT SURGERY, BRITISH
VOLUME, (1979 Nov) 61-B (4)
501-8
Journal code: HK7, ISSN: 0047-9076
CY ENGLAND: United Kingdom
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals, Priority Journals
EM 198003

L17 ANSWER 10 OF 11 MEDLINE
AN 77024724 MEDLINE
DN 77024724
TI Pathogenesis of scoliosis.
AU Ponsell I V, Pedrini V, Wyne-Davies R, Duval-Beaupere G
SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH,
(1976) 00 (120) 268-80
Journal code: DFY, ISSN: 0009-921X
CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 197702
AB Scoliosis often occurs in otherwise normal individuals or it may

be associated with many widely differing diseases. The curve patterns are fairly uniform and the vertebrae always rotate in the frontal and horizontal planes producing convex side rotation with little displacement of the spinous processes. Many small curves do not increase. Progressive scoliosis increases linearly and the rate of increase accelerates at puberty. No endocrine abnormalities have been observed in these patients. Usually the deformity is not caused by abnormal vertebral growth nor by abnormal collagen in vertebral ligaments. The glycosaminoglycans of nucleus pulposus are decreased in patients with ***idiopathic*** ***scoliosis***. We speculate that loss of proteoglycans will affect the viscoelastic properties of the ***intervertebral*** ***discs*** which may result in permanent deformation. The etiology of scoliosis appears to be multifactorial with a genetic tendency to the deformity which is triggered in different individuals by different factors, some medical, some mechanical and some genetic.

L17 ANSWER 11 OF 11 MEDLINE
AN 74044960 MEDLINE
DN 74044960
TI Glycosaminoglycans of ***intervertebral*** ***disc*** in ***idiopathic*** ***scoliosis***
AU Pedrini V A, Ponsell I V, Dohman S C
SO JOURNAL OF LABORATORY AND CLINICAL MEDICINE,
(1973 Dec) 82 (6) 938-50
Journal code: IYR, ISSN: 0022-2143
CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals, Priority Journals
EM 197403

=> s disc herniation/ab,bi
26941 DISC/BI
4883 HERNIATION/BI
5401617 AB/FA
1137 DISC HERNIATION/AB
(DISC(W)HERNIATION)BI (L) AB/FA
26941 DISC/BI
4883 HERNIATION/BI
1359 DISC HERNIATION/BI
(DISC(W)HERNIATION)BI
L18 1359 DISC HERNIATION/AB,BI
=> s l18 and intervertebral disc/ab,bi

14933 INTERVERTEBRAL/BI
31068 DISC/BI
5401617 AB/FA
1839 INTERVERTEBRAL DISC/AB
(INTERVERTEBRAL(W)DISC)BI (L) AB/FA
14933 INTERVERTEBRAL/BI
31068 DISC/BI
2506 INTERVERTEBRAL DISC/BI
(INTERVERTEBRAL(W)DISC)BI
L19 245 L18 AND INTERVERTEBRAL DISC/AB,BI

=> s l19 and (annulus or nucleus?)ab,bi
2789 ANNULUS/BI
5401617 AB/FA
2629 ANNULUS/AB
(ANNULUS/BI (L) AB/FA)
2789 ANNULUS/BI
35306 NUCLEOS/BI
5401617 AB/FA
17452 NUCLEOS/AB
(NUCLEOS/BI (L) AB/FA)
35306 NUCLEOS/BI
L20 9 L19 AND (ANNULUS OR NUCLEOS?)AB,BI

=> d l - bib ab
YOU HAVE REQUESTED DATA FROM 9 ANSWERS.
CONTINUE? Y(N)/Y

L20 ANSWER 1 OF 9 MEDLINE
AN 1998152012 MEDLINE
DN 98152012
TI Herniated cervical ***intervertebral*** ***discs***: histological and immunohistochemical characteristics.
AU Baba H, Maetzawa Y, Furusawa N, Fukuda M, Uchida K, Kohno Y, Imura S
CS Department of Orthopaedic Surgery, Fukui Medical School, Japan.
SO EUROPEAN JOURNAL OF HISTOCHEMISTRY, (1997) 41 (4) 261-70
Journal code: BAL, ISSN: 1121-760X
CY Italy
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199806
EW 19980603
AB We examined the histological and immunohistochemical changes within and around herniated cervical ***intervertebral*** ***discs***.
A total of 28 herniated discs were harvested en bloc during anterior decompressive surgeries and examined together with the surrounding

tissues. The presence of herniated discs correlated with the degeneration of cartilaginous endplate and torn ***annulus*** fibrosis. Formation of new blood vessels around the herniated discs was detected, using von Willebrand factor antibody, in seven (25% of all) uncontained hernias and eight (38%) contained hernias. Immunohistochemical studies using specific antibodies showed the presence of cells positive for matrix metalloproteinase-3 (chondrocytes), CD68 (macrophages and monocytes), and interleukin-1 beta (endothelial cells), in cervical disc hernias. Our results suggested that the magnitude and degree of immunohistochemical tissue reaction in cervical ***disc*** ***herniation*** correlate with the extent as well as location of herniated disc material.

L20 ANSWER 2 OF 9 MEDLINE
AN 97032052 MEDLINE
DN 97032052
TI Histologic changes in the disc after cervical spine trauma: evidence of disc absorption.
AU Carren L Y, Ito T, Yamada M, Uchiyama S, Takahashi H, Ikuta F
CS Department of Orthopaedic Surgery, Niigata University School of Medicine, Japan.
SO JOURNAL OF SPINAL DISORDERS, (1996 Aug) 9 (4) 313-6.
Journal code: BEQ, ISSN: 0895-0385.
CY United States
DT Journal: Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199704
EW 19970402
AB We examined the histologic changes in the disc in two cases of traumatic cervical ***disc*** ***herniation*** and compared it with previous histologic studies done in degenerative disc herniations. Differences in the absorption of herniated cartilage endplate and ***annulus*** fibrosis are also discussed. The herniated disc material was surrounded by fibrovascular tissue. Vessels in this fibrovascular tissue were seen to continue into the ***annulus*** fibrosis but not into the endplate. Scattered cartilage fragments and macrophages in the fibrovascular tissue were localized around the margin of the disc. The herniation produced a visible defect in the injured ***intervertebral*** ***disc***.

On serial sections, the amount of herniated ***annulus*** fibrosis appeared to be smaller than the defect produced in the ***annulus*** fibrosis of the injured disc. However, the herniated endplate seemed to be the same size as the defect produced in the endplate of the injured disc. Fibrovascular tissue formation, vessel infiltration into ***annulus*** fibrosis, and the presence of peripheral macrophages suggest marginal absorption. The cartilage fragments are probably remnants of disc tissue produced during the process of absorption. These findings are similar to that seen in degenerated herniated discs and suggest an absorptive process. Absorption of the ***annulus*** is more significant than absorption of the endplate.

L20 ANSWER 3 OF 9 MEDLINE
AN 96081406 MEDLINE
DN 96081406
TI Intradiscal injection of hypertonic saline, phenol-glycerin and osmic acid for the treatment of lumbar ***disc*** ***herniation***: an experimental study.
AU Shioka M
CS Department of Orthopaedic Surgery, School of Medicine, Keio University, Tokyo, Japan.
SO NIPPON SEIKEIGAKA GAKKAI ZASSHI, JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION, (1995 Oct) 69 (10) 964-76.
Journal code: ION, ISSN: 0021-5325.
CY Japan
DT Journal: Article, (JOURNAL ARTICLE)
LA Japanese
FS Priority Journals
EM 199604
AB The present study was designed to investigate the possible clinical application of hypertonic saline (HS), phenol in glycerin (PHG) and osmic acid (OSA) for intradiscal therapy. MATERIALS & METHODS: HS in several concentrations, 10% PHG and 4% OSA were separately injected into the lumbar ***intervertebral*** ***discs*** of 60 Japanese white rabbits. Additionally, these substances were placed directly on the dura of the spinal cord of 48 guinea pigs. The animals were sacrificed periodically and were submitted to histological examination using light microscopy. RESULT: HS caused localized necrosis of the

nucleus pulposus cells in a concentration-related fashion. Some discs decreased their height. With time, all the discs generally regained their normal histology. Following administration of 10% PHG, the area of necrosis of the nucleus pulposus cells was more extensive than that by HS, but the regenerative or reparative reaction was not so brisk. Examination of the discs treated with 4% OSA demonstrated severe changes in the nucleus pulposus and the inner ***annulus*** fibrosis with resultant disc-space narrowing. The reparative tissue seen after injection of OSA was fibrocartilage in nature. No histological change was seen in the surrounding tissue including the neural tissue following administration of any of the substances. DISCUSSION: Chymopapain is the substance most frequently used for clinical chemonucleolysis. The major clinical complication with chymopapain has been anaphylaxis. The present substances have been used in other clinical applications without reports of anaphylaxis. In this report, HS was shown to hold the potential for reducing intradiscal pressure without induction of scar tissue or significant loss of disc function. PHG and OSA caused considerable but circumscribed histological damage to the disc tissue, but had no such effect on the neural tissues. These data suggested that HS, PHG and OSA may have clinical applications as agents in intradiscal therapy.

L20 ANSWER 4 OF 9 MEDLINE
AN 96014367 MEDLINE
DN 96014367
TI Laparoscopic laser lumbar discectomy. Operative technique and case report.
AU Sturman G J, Stein S C
CS Department of Surgery, Cooper Hospital/University Medical Center, University of Medicine and Dentistry of New Jersey, Robert Wood Johnson Medical School at Camden 08103, USA.
SO SURGICAL ENDOSCOPY, (1995 Jul) 9 (7) 826-9.
Journal code: VBE, ISSN: 0930-2794.
CY GERMANY; Germany, Federal Republic of
DT Journal: Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199602
AB Approximately 300,000 patients each year in the United States undergo laminectomy for disabling lumbar ***disc*** ***herniation***. Post-laminectomy hospitalization is 3-7 days and convalescence may be

prolonged. As an alternative to laminectomy, we have developed a technique for performing L5-S1 lumbar diskectomy laparoscopically. Using an anterior approach, the ***intervertebral*** ***disc*** space is opened and the diskectomy is performed under direct videolaparoscopic imaging. After pneumoperitoneum is established, the patient is placed in a steep Trendelenburg position. The small bowel is retracted cephalad and the colon is moved to the left. The iliac vessels are identified visually and by Doppler probe, and the presacral space is dissected in the midline to expose the L5-S1 disc. In the case presented, the disc ***annulus*** was opened with the Nd:YAG contact laser, and diskectomy was performed under direct videolaparoscopic vision using standard neurosurgical instruments modified for laparoscopy. The posterior longitudinal ligament can be visualized directly to define the posterior limits of the completed diskectomy. In the case described, pain relief was confirmed immediately after the procedure. The patient was discharged after 2 hospital days, and returned to normal activity in 8 days.

L20 ANSWER 5 OF 9 MEDLINE
AN 94110711 MEDLINE
DN 94110711

TI An experimental study on the pathological changes of the ***intervertebral*** ***disc*** and its surrounding tissues after intradiscal injection of various chemical substances (the first report).

AU Chiba K
CS Department of Orthopaedic Surgery, School of Medicine, Keio University, Tokyo, Japan.
SO NIPPON SEIKAIGEKA GAKKAI ZASSHI, JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION, (1993 Nov) 67(11) 1055-69.
Journal code: JON, ISSN: 0021-5325.

CY Japan
DT Journal, Article, (JOURNAL ARTICLE)
LA Japanese
FS Priority Journals
EM 199404
AB The author has investigated the possible clinical application of new suitable and reliable substances for intradiscal therapy.
METHODS AND MATERIALS AND RESULTS. Several concentrations of various chemical substances (HCl, NaOH,

etc.) were injected into the lumbar ***intervertebral*** ***disc*** of 165 Japanese white rabbits. These animals were sacrificed periodically and the obtained disc specimens were submitted to histological examinations with light and electron microscopes. Effects of these substances on the dura mater and the spinal cord of 87 guinea pigs were also investigated histologically. RESULT: Acids, bases and ethanol, especially in high concentration, caused intense necrosis of nucleus pulposus cells and degeneration of the matrix as well as destruction of the ***annulus*** fibrosis occasionally with necrosis of endplate cells. Narrowing of disc height was frequently observed. Hemorrhage and inflammatory changes of surrounding tissues including the dura mater and the spinal cord were not rare. While low concentration acids and bases as well as other chemical substances such as osmic acid and phenol showed somewhat confined changes to the nucleus pulposus with minimal changes to peridiscal tissues including the neural structures. In other words, changes induced by these chemical substances were circumscribed to the nucleus pulposus, provided the concentration of the substances were adjusted to an appropriate level. DISCUSSION: Recently, chemonucleolysis and percutaneous discectomy have been recognized as alternatives to surgical treatments for lumbar ***disc*** ***herniation*** and

seemed to have established a new concept "intermediate therapy". However, each method has certain disadvantages as well. The purpose of the present study is to find out safer and reliable agents that can dissolve the nucleus pulposus without adverse side effects such as anaphylaxis or transverse myelitis that occurs with some nucleolytic enzymes. In this perspective, the results of this study have provided evidences that certain chemical substances have possible clinical application in intradiscal therapy.

L20 ANSWER 6 OF 9 MEDLINE
AN 92240042 MEDLINE
DN 92240042

TI An observation of ruptured ***annulus*** fibrosis in lumbar discs.
AU Ito S, Yamada Y, Tsuboi S, Yamada Y, Niuro T
CS Department of Orthopaedic Surgery, Social Insurance Chukyo Hospital.

Nagoya, Japan.
SO JOURNAL OF SPINAL DISORDERS, (1991 Dec) 4(4) 462-6.
Journal code: BEQ, ISSN: 0895-0385.

CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199208

AB To observe anatomical or pathological changes in lumbar ***intervertebral*** ***disc***, discography and computed tomography-discography (CTD) were performed on fresh human cadavers. The results of discograms and CTD were compared with histological findings of cross sections of discs. Preoperative CTD of lumbar ***disc*** ***herniation*** was investigated based on these results. Ruptures of the ***annulus*** fibrosis were divided into two categories: circumferential rupture and radial rupture. In CTD images of fresh human cadavers, most images of rupture of the ***annulus*** fibrosis showed anterior to lateral circumferential rupture. As disc degeneration progressed, circumferential rupture tended to coexist with radial rupture in many cases. In CTD cases of lumbar ***disc*** ***herniation***, most images of ruptures of the ***annulus*** fibrosis showed a posterior radial rupture, which was the route for herniated nucleus. The greater the degree of degeneration, the more the images tended to show radial ruptures coexisting with circumferential ruptures.

L20 ANSWER 7 OF 9 MEDLINE
AN 91262707 MEDLINE
DN 91262707

TI Mechanism of disc rupture. A preliminary report.
AU Gordon S J, Yang K H, Meyer P J, Mace A H Jr, Kish V L, Radin E L
CS Department of Orthopaedic Surgery, West Virginia University, Morgantown.
SO SPINE, (1991 Apr) 16(4) 450-6.
Journal code: UXK, ISSN: 0362-2436.

CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199109
AB Lumbar ***intervertebral*** ***disc*** ***herniation*** is thought to be related to sclerotic changes in the nucleus pulposus in rare instances of trauma. This investigation provides the first in vitro model of disc prolapse that reliably ruptures discs under physiologically reasonable stress. Fourteen vertebral motion segments with

intact posterior elements were loaded repetitively at 1.5 Hz in a combination of flexion (7 degrees), rotation (less than 3 degrees), and compression (1,334 N) for an average of 6.9 hours (range, 3.0-13.0 hours) in a materials testing machine. Loading was terminated when reaction force leveled off for more than 1 hour. Ten discs failed through annular protrusions, and four failed by nuclear extrusion through annular tears, supporting the hypothesis that ***intervertebral*** ***disc*** prolapse is peripheral in origin. The ***annulus*** fibrosis is the site of primary pathologic change.

L20 ANSWER 8 OF 9 MEDLINE
AN 88003187 MEDLINE
DN 88003187
TI Percutaneous posterolateral discectomy: Anatomy and mechanism.
AU Kambin P, Brager MD
CS Graduate Hospital, University of Pennsylvania, School of Medicine,
Department of Orthopaedic Surgery, Philadelphia.
SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH.
(1987 Oct) (223) 145-54.
Journal code: DEF. ISSN: 0009-921X.

CY United States
DT Journal Article: (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 198801
AB The evacuation and decompression of the herniated lumbar disc through a sheath inserted dorsolaterally represents a new concept in the treatment of radiculopathy associated with ***disc*** ***herniation***.

Only a small portion of the spinal nerve before its descent and positioning anterior to the transverse process is subject to insult by an instrument introduced into the ***intervertebral***. ***disc*** through posterolateral approach. The chance of injury to the spinal nerve is further minimized when the instruments are introduced a distance of approximately 9-10 cm from the midline, parallel to the vertebral plates, and penetrating the ***annulus*** at 10 o'clock or 2 o'clock.

The rapid decline of intradiscal pressure after dorsolateral fenestration of the ***annulus*** appears to be an important factor in the relief of sciatic pain following percutaneous posterolateral discectomy. The evacuation and decompression of an extruded ***intervertebral***

disc with a straight instrument may not be possible. Patients with sequestered disc require laminectomy.

L20 ANSWER 9 OF 9 MEDLINE
AN 86304517 MEDLINE
DN 86304517
TI Histological development of ***intervertebral*** ***disc*** ***herniation***.

AU Yasuna T, Makino E, Saito S, Inui M
SO JOURNAL OF BONE AND JOINT SURGERY. AMERICAN VOLUME. (1986 Sep) 68 (7) 1066-72.
Journal code: HJR. ISSN: 0021-9355.

CY United States
DT Journal Article: (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 198612
AB Sagittal and horizontal sections of 257 ***intervertebral*** ***discs*** obtained at autopsy and material obtained from 441 operations for herniation of a disc were examined histologically. In the material that was taken at autopsy, myxomatous degeneration of the ***annulus*** fibrosis increased in proportion to the age of the subject. The bundles in the internal layer of the ***annulus*** fibrosis reversed their usual direction and showed myxomatous degeneration, sometimes resulting in posterior and anterior convex bulging in the internal layer of the anterior and posterior parts of the ***annulus*** fibrosis, respectively. When material from a disc was surgically removed as a single free fragment (as in a complete extrusion or a sequestration type of herniation), ***annulus*** fibrosis with myxomatous degeneration was found in most material, while the nucleus pulposus rarely was. These results suggest that, from the standpoint of pathomechanism, a protrusion type of herniation of the ***annulus***

fibrosis exists in which only the ***annulus*** fibrosis is protruded due to reversal of the bundles of the ***annulus*** fibrosis, without involvement of the nucleus pulposus. This type of herniation would be a separate entity from the protrusion type of herniation of the nucleus pulposus that occurs when the nucleus pulposus is protruded through a fissure in the ***annulus*** fibrosis.

=> s disc degeneration/ab,bi

=> s disc degeneration/ab,bi

26941 DISC/BI
51789 DEGENERATION/BI
5401617 AB/F A
403 DISC DEGENERATION/AB
(DISC(W)DEGENERATION/BI (L) AB/F A)

26941 DISC/BI
51789 DEGENERATION/BI
456 DISC DEGENERATION/BI
(DISC(W)DEGENERATION/BI (L) AB/F A)
456 DISC DEGENERATION/AB,BI

=> s 121 and intervertebral disc/ab,bi

14933 INTERVERTEBRAL/BI
31068 DISC/BI
5401617 AB/F A
1839 INTERVERTEBRAL DISC/AB
(INTERVERTEBRAL(W)DISC/BI (L) AB/F A)

14933 INTERVERTEBRAL/BI
31068 DISC/BI
2506 INTERVERTEBRAL DISC/BI
(INTERVERTEBRAL(W)DISC/BI (L) AB/F A)
169 L21 AND INTERVERTEBRAL DISC/AB,BI

=> s 122 and (annulus or nucleus)/ab,bi

2789 ANNULUS/BI
5401617 AB/F A
2629 ANNULUS/AB
(ANNULUS/BI (L) AB/F A)
2789 ANNULUS/BI
35306 NUCLEOS/BI
5401617 AB/F A
17452 NUCLEOS/AB
(NUCLEOS/BI (L) AB/F A)
35306 NUCLEOS/BI

L23 18 L22 AND (ANNULUS OR NUCLEOS)/AB,BI

=> d 1-bib ab

YOU HAVE REQUESTED DATA FROM 18 ANSWERS - CONTINUE? Y(N)/y

L23 ANSWER 1 OF 18 MEDLINE
AN 2000142504 MEDLINE
DN 20142504
TI Investigation on matrix degrading enzymes of lumbar ***intervertebral*** ***disc***

AU Jiang W, Tang T, Yang H
CS Department of Orthopaedics, First Affiliated Hospital of Suzhou Medical College
SO CHUNG-HUA WAI KO TSA CHIH [CHINESE JOURNAL OF SURGERY]. (1997 Nov) 35 (11) 684-6

Journal code: D86 ISSN: 0529-5815.

CY China

DT Journal Article: (JOURNAL ARTICLE)

LA Chinese

EM 200007

EW 20000701

AB Changes in the macromolecular matrix of the

intervertebral

disc may predispose to biomechanical failure of the disc.

Such changes would involve extracellular enzymes capable of altering

the collagen and proteoglycan of the disc matrix. In this study,

tritium-labelled type I collagen was used as a substrate to estimate

the activity of collagenase in the discs of 41 cases of lumbar disc

protrusion (LDP) patients by surgical intervention. The ***annulus***

fibrous

(AF) and nucleus pulposus (NP) were measured separately. 34

normal discs harvested by autopsy acted as controls. For estimation of relative

proteinase content of 6 normal and 16 degenerated lumbar discs,

polyacrylamide gel electrophoresis (PAGE), heat-denatured

collagen as a substrate, and photo-density scanning with peak area

auto-calculating

system were adopted. The results presented that both AF and NP of

the normal discs had a similar lower collagenolytic activity and a very

limited activity of neutral proteinase, while the degenerated discs

showed

a higher activity, especially in the degenerated NP. The extruded

type of

LDP got a higher collagenolytic activity in NP than that of the

prolapsed LDP. The fact showed that the matrix degrading enzymes play a

very

important role in the process of lumbar ***disc***

degeneration. The difference of ***disc***

degeneration is the biochemical basis of different clinical

types

of LDP. Matrix degrading enzyme system is a very complexed

multienzymatic

system. Other neutral proteinases may join this system besides the

collagenase.

L23 ANSWER 2 OF 18 MEDLINE

AN 1999273592 MEDLINE

DN 99273592

TI Cathepsin G in degenerating and healthy discal tissue.

AU Kontinen Y T; Kaapa E; Hukkanen M; Gu X H; Takagi M;

Santavirta S;

Alaranta H; Li T F; Suda A

CS Department of Anatomy, University of Helsinki, Finland

SO CLINICAL AND EXPERIMENTAL RHEUMATOLOGY,

(1999 Mar-Apr) 17 (2) 197-204.

Journal code: DFA ISSN: 0392-856X

CY Italy

DT Journal Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199909

AB OBJECTIVES: To assess the eventual presence, tissue

localization,

molecular forms, amount and activity of cathepsin G in the

annulus

fibrosis. METHODS: Normal non-autolytic disc tissue was

collected from

cadavers within six hours after death. Degenerate disc samples

were

collected from low back pain patients undergoing anterior interbody

fusion

due to severe, discographically verified and painful ***disc***

degeneration, and from the posterior parts of

intervertebral ***disc*** from 10 patients

undergoing

microscopic discectomy because of intervertebral herniation.

Avidin-biotin-peroxidase complex staining of cathepsin G was

quantitated by

morphometry. Cellular localization was analyzed using double

immunofluorescence staining of cathepsin G and CD68, proline

4-hydroxylase

or von Willibrand factor. Neutral salt extracts were analyzed by

using

synthetic cathepsin G substrate in spectrophotometry,

dot-immunoblotting

and Western blotting. RESULTS: Histological and morphometric

image

analysis showed increased cellularity, increased numbers of

cathepsin G

positive cells and neovascularization in degenerated discs compared

to

control discs. Neutral salt extract of disc tissue, degenerated or

normal,

in contrast to control material from synovial capsular tissue, did not

contain measurable cathepsin G activity, although immunoreactive

enzyme

was detected in dot-immunoblotting. Western blotting

demonstrated that the

discal cathepsin G had an apparent molecular weight of 27 kDa.

CONCLUSION:

Due to its properties and localization in normal and pathologically

altered tissue, cathepsin G probably plays both a direct and an

indirect

role in extracellular matrix degradation in the ***annulus***

fibrosis. Extracted cationic cathepsin G was immunoreactive, but

was

functionally inhibited by serpins or, more likely, by polyanionic

proteoglycans and saccharins derived from the connective tissue

matrix of

the ***annulus*** fibrosis.

L23 ANSWER 3 OF 18 MEDLINE

AN 1999054202 MEDLINE

DN 99054202

TI An analysis of radiating pain at lumbar discography.

AU Saftuddin A; Emanuel R; White J; Rendon P; Braithwaite I;

Taylor B A

CS Department of Radiology, The Royal National Orthopaedic

Hospital Trust,

Middlesex, UK.

SO EUROPEAN SPINE JOURNAL. (1998) 7 (5) 358-62.

Journal code: B9Y ISSN: 0940-6719

CY GERMANY; Germany, Federal Republic of

DT Journal Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199904

EW 19990402

AB This study aimed to identify the morphological abnormalities of

the ***intervertebral*** ***disc***, as demonstrated by lumbar

discography, that are associated with pain radiation to the hip, groin,

buttock or lower limb. We carried out a retrospective review of 99

consecutive lumbar discogram reports. The association of

disc

degeneration, annular tears (partial or full thickness) and

the level of disc injected was determined with respect to the presence

and pattern of radiating pain. A total of 260 discs were injected, of

which 179 were considered abnormal. Posterior annular tears were

demonstrated in

84 discs, anterior annular tears in 15 discs and 45 discs had both

anterior and posterior tears. A significant association was identified

between isolated posterior tears and the production of concordant

radiating pain ($P = 0.0041$). No difference was identified between

partial

thickness posterior tears and full thickness posterior tears

associated

with peak of contrast medium, with regard to radiating pain.

Similarly,

there was no significant association between disc level injected and

the

pattern of pain radiation. The results indicate that pain experienced

in

the buttock, hip, groin or lower limb can arise from the posterior

annulus of the ***intervertebral*** ***disc***

without

direct involvement of the nerve root.

L23 ANSWER 4 OF 18 MEDLINE

AN 1998176951 MEDLINE

DN 98176951

TI Relative increase of biglycan and decorin and altered chondroitin

sulfate

epitopes in the degenerating human ***intervertebral***

disc

AU Inkinen R I, Leinikki M J, Lehtinen S, Pusa-Järvi K, Kaapa E, Tamm M I
 CS Department of Anatomy, University of Kuopio, Finland
 SO JOURNAL OF RHEUMATOLOGY, (1998 Mar) 25 (3) 506-14.
 CY Journal code: JMW, ISSN: 0315-162X.
 DT Journal Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199807
 EW 19980702
 AB OBJECTIVE: Proteoglycans are major components of the extracellular matrix of the ***intervertebral*** ***disc***. They are vital for the biomechanical properties of the tissue, and are subject to changes in ***disc*** ***degeneration***. We aimed to further define these changes and their relationship to normal aging. METHODS: Normal discs (age 13-55 years, n = 6) were analyzed from 5 different sites across the sagittal anterior-posterior direction. Degenerated anterior ***annulus*** fibrosis was collected from 7 patients aged 39-46 years. Extracted proteoglycans were separated using agarose and polyacrylamide gel electrophoresis and detected with toluidine blue staining and Western blotting. RESULTS: The center of the disc showed the highest level of total proteoglycans, but lowest levels of decorin and biglycan. Western blots displayed reduced signal for both glycanated and nonglycanated biglycan and decorin after adolescence, while an increased signal of biglycan was observed in degenerated annuli. The TDC(+) and 3B3(-) epitopes on native chondroitin sulfate chains were present in the large proteoglycans of ***intervertebral*** ***discs***, but their signal intensity had no correlation to degeneration. Chondroitinase ABC digestion of the blots brought up TDC(+) signal in the small proteoglycans of degenerated, but not in healthy tissue. Decrease or total loss of 2B6(+) epitope (indicating 4-sulfated stubs of chondroitin sulfate chains) were found in the large proteoglycans of all degenerated annuli. CONCLUSION: Human ***intervertebral*** ***disc*** ***degeneration*** involves the accumulation of decorin and biglycan relative to other uronic acid containing proteoglycans, the disappearance of 4-sulfated core region in aggrecan-like large proteoglycans, and the emergence of a core structure in the chains of small proteoglycans reacting with the 7D4 antibody; these findings indicate a

fundamental alteration in matrix properties that may contribute to the pathogenesis of the disease.
 L23 ANSWER 5 OF 18 MEDLINE
 AN 97193912 MEDLINE
 DN 97193912
 TI Topographical variation in the catabolism of aggrecan in an ovine annular lesion model of experimental ***disc*** ***degeneration***
 AU Melrose J, Gheoh P, Taylor T K, Latham J, Moore R
 CS Raymond Parvex Bone and Joint Research Laboratories, University of Sydney, Royal North Shore Hospital of Sydney, St. Leonards, New South Wales, Australia.
 SO JOURNAL OF SPINAL DISORDERS, (1997 Feb) 10 (1) 55-67.
 Journal code: BEQ, ISSN: 0895-0385.
 CY United States
 DT Journal Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199707
 EW 19970705
 AB An established model of experimental ***disc*** ***degeneration*** (Osei et al., Spine 15:762, 1990; Melrose et al., J Orthop Res 10:655, 1992) was used in this study. Four 2-year-old sheep received anterolateral incisions (4 x 10 mm) in the outer one-third of the ***annulus*** fibrosis of their L2-L3 and L4-L5 discs (lesion group). The ***annulus*** was not incised in another four sham-operated animals. After 6 months the sheep were killed, lumbar discs were dissected into lateral halves of the ***annulus*** fibrosis and the nucleus pulposus. Cells were isolated from disc tissues enzymatically and were grown in alginate bead culture to examine the proteoglycan metabolism of cells from lesion and control zones. The media of lesion zone cultures contained relatively high levels (compared with sham cultures) of catabolic fragments of the large, high-hydrant-density proteoglycans as demonstrated by Western blotting using monoclonal antibodies (5-D-4, 3-B-3, 1-C-6) and biotinylated hyaluronan and also by gel chromatography. Furthermore, cells from the vicinity of the lesion site also synthesized significantly lower

levels (compared with sham cultures) of aggrecan that was retained within the alginate beads. Collectively, these data indicated that focal depletion of large, high-hydrant-density proteoglycans was evident within lesion sites in this model of experimental ***disc*** ***degeneration***. The introduction of an annular lesion therefore significantly affected the proteoglycan metabolism of endogenous disc cell populations. The unique hydrodynamic and viscoelastic properties of the ***intervertebral*** ***disc*** are dependent to a large degree on the tissue levels of aggrecan. The focal depletion of aggrecan by annular lesions therefore may represent an important predisposing factor to the subsequent degeneration of these ***intervertebral*** ***discs***.
 L23 ANSWER 6 OF 18 MEDLINE
 AN 97193911 MEDLINE
 DN 97193911
 TI Analysis of chondroitin sulfate in lumbar ***intervertebral*** ***discs*** at two different stages of degeneration as assessed by discectomy.
 AU Hutton W C, Elmer W A, Boden S D, Horton W C, Carr K
 CS Emory Spine Center, Department of Orthopaedic Surgery, Atlanta, Georgia, USA.
 SO JOURNAL OF SPINAL DISORDERS, (1997 Feb) 10 (1) 47-54.
 Journal code: BEQ, ISSN: 0895-0385.
 CY United States
 DT Journal Article, (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199707
 EW 19970705
 AB Previous studies have presented evidence that an underlying cause of ***intervertebral*** ***disc*** ***degeneration*** is related to changes in the sulfation of the proteoglycans. The sulfation of the chondroitin in cadaveric lumbar ***intervertebral*** ***discs*** at two different stages of degeneration as assessed by discectomy, were analyzed. Fourteen of 28 lumbar discs were graded 2 and the other 14 were graded 4 (i.e., more degenerated). From each disc, six regional segments were carefully isolated. Proteoglycans were solubilized from the disc tissue with 4 M GuHCl. Chondroitin sulfate chains were analyzed

by
diethylaminoethyl (DEAE)-Sephacel and high-performance liquid chromatography (HPLC) anion exchange chromatography. The major differences in sulfation of the chondroitin between grade 2 and grade 4 discs only occurred in the posterior central ***annulus*** and nucleus segments.

The chondroitin in the posterior central nucleus segments of the grade 2 and grade 4 ***intervertebral*** ***discs*** were undersulfated as compared with the other segments, and the differences between these segments and the others were more accentuated in the grade 4 discs than in grade 2 discs.

L23 ANSWER 7 OF 18 MEDLINE
AN 97172381 MEDLINE
DN 97172381
TI The effects of posterior fixation on internal ***intervertebral***

disc mechanics.
AU Edwards A G; McNally D S; Mulholland R C; Goodship A E
CS Department of Anatomy, University of Bristol, UK.
SO JOURNAL OF BONE AND JOINT SURGERY, BRITISH VOLUME, (1997 Jan) 79 (1)
154-60.
Journal code: HK7, ISSN: 0301-620X.
CY ENGLAND; United Kingdom
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199705
EW 19970503
AB Posterior fixation of ***intervertebral*** ***discs*** is used to treat, and occasionally diagnose, discogenic pain since it is thought that it will reduce the internal loading of the discs in vivo. We measured the internal loading of ten ***intervertebral*** ***discs*** using stress profilometry under simulated physiological loads and then posterior fixation. Partial dissections were performed to simulate advanced ***disc*** ***degeneration*** and the sequence repeated.
Posterior fixation had very little effect on the magnitude of the loads acting on the disc and none when ***disc*** ***degeneration*** was simulated. It did, however, reduce bulging of the anterior ***annulus*** under combined bending and compression ($p < 0.03$). Recent experiments in

vivo have shown that discogenic pain is associated with abnormal bulging of the ***annulus*** which suggests that the clinical benefit of fixation may be due to this.

L23 ANSWER 8 OF 18 MEDLINE
AN 96429221 MEDLINE
DN 96429221
TI Progressive degeneration of articular cartilage and ***intervertebral***

discs. An experimental study in transgenic mice bearing a type IX collagen mutation.

AU Kimura T; Nakata K; Tsumaki N; Miyamoto S; Matsui Y; Ebara S; Ochi T
CS Department of Orthopaedic Surgery, Osaka University Medical School, Japan.
SO INTERNATIONAL ORTHOPAEDICS, (1996) 20 (3) 177-81.
Journal code: GRF, ISSN: 0341-2695.
CY GERMANY; Germany, Federal Republic of
DT Journal, Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199702
EW 19970204
AB Transgenic mice expressing mutant alpha 1(X) collagen were produced and found to develop progressive joint degeneration with age, as well as accelerated ***intervertebral*** ***disc***

degeneration. Radiological and histological studies showed that cervical and lumbar ***disc*** ***degeneration*** was more advanced in the transgenic mice than in control litter-mates. The changes included shrinkage or disappearance of the nucleus pulposus, and fissures in the ***annulus***.

Fibrosis which sometimes lead to herniation of disc material and slight osteophyte formation. These findings suggest that mutations of the type IX collagen may cause certain forms of degenerative disease in the spine as well as in joints.

L23 ANSWER 9 OF 18 MEDLINE
AN 96123899 MEDLINE
DN 96123899
TI Histological, magnetic resonance imaging, and discographic findings on cervical ***disc*** ***degeneration*** in cadaver spines: a comparative study.
AU Matsumura Y
CS Department of Orthopaedic Surgery, Juntendo University School of Medicine, Tokyo, Japan.
SO NIPPON SEIKIGAKA GAKKAI ZASSHI, JOURNAL OF

THE JAPANESE ORTHOPAEDIC ASSOCIATION, (1995 Nov) 69 (11) 1102-12
Journal code: ION, ISSN: 0021-5325.

CY Japan
DT Journal, Article; (JOURNAL ARTICLE)
LA Japanese
FS Priority Journals
EM 199605
AB A total of 210 cervical ***intervertebral*** ***discs*** were taken at autopsy from 36 cadavers, and underwent both magnetic resonance imaging (MRI) and discography to compare their diagnostic efficacies for investigating degenerative changes in the cervical spine. The age of the subjects had ranged from 43 to 92 years with an average of 68.1 years.

Following the autopsy, MRI and discography were performed on the excised cervical spinal column, and the specimen was then prepared for histological examination. The findings were compared with those of the lumbar spine that had previously been reported by Yasuma et al. on 1238 lumbar discs from 197 cadavers ranging in age from 11 to 92 years. The results were as follows: 1) Low intensity in the T2-weighted MRI correlated with histological degeneration in the cervical disc.

2) The rate of appearance of the posterior protrusion of the cervical disc on the MRI was in accordance with the degree of histological ***disc*** ***degeneration***, but it did not always correspond with histological posterior protrusion. There was a remarkably high incidence for false-positive posterior protrusion on the MRI, which should be kept in mind on reading the MRI. 3) In the comparison of the MRI with the discography, a certain positive correlation was found as for ***disc*** ***degeneration***, but not in complete accordance. 4) There was a considerable difference in the patterns of degeneration and in posterior protrusion of the discs between the cervical spine and the lumbar spine.

The posterior protrusion in the cervical disc was more likely related to horizontal fissure and hyalinization of the posterior ***annulus*** while posterior protrusion in the lumbar disc was often related to reversed orientation of the bundles and myxomatous degeneration of the

posterior ***annulus***. This difference was attributed to the difference in the mechanical properties of the cervical and lumbar spines.

L23 ANSWER 10 OF 18 MEDLINE
AN 96013121 MEDLINE
DN 96013121

TI Changes of proteoglycans in lumbar ***intervertebral***
disc
of bipedal rats with aging

AU Dong F, Dai K, Hou X
CS Ninth People's Hospital, Shanghai Second Medical University,
SO CHUNG-HUA IHSUEH TSA CHIH [CHINESE MEDICAL
JOURNAL], (1995 Jun) 75 (6)
352-4, 383.
Journal code: CDG, ISSN: 0376-2491.

CY China

DT Journal, Article, (JOURNAL ARTICLE)

LA Chinese

EM 199601

AB Using a computer based image analysis system and histological sections

stained with Safranin O, we investigated systematically the variation of

proteoglycans (PG) contents in the low lumbar discs of bipedal rats. Topographically, the PG concentration increased from the outer

annulus to the inner nucleus pulposus region, which possesses the

highest PG concentration. The PG content decreased with age, and

significant loss of PG was observed in the lumbar discs of bipedal rats as

compared with controls, especially in the nucleus pulposus. These observations support the view that the higher abnormal mechanical

stress
accelerates ***disc*** ***degeneration***

L23 ANSWER 11 OF 18 MEDLINE

AN 95171236 MEDLINE

DN 95171236

TI Effects of axial traction stress on solute transport and proteoglycan synthesis in the porcine ***intervertebral*** ***disc*** in vitro

AB

AU Terahata N, Ishihara H, Ohshima H, Hirano N, Tsuji H

CS Department of Orthopaedic Surgery, Faculty of Medicine,

Toyama Medical and

Pharmaceutical University, Japan.

SO EUROPEAN SPINE JOURNAL, (1994) 3 (6) 325-30.

Journal code: B9Y, ISSN: 0940-6719

CY GERMANY, Germany, Federal Republic of

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199506

AB The effects of axial traction stress on intradiscal hydration, solute transport and proteoglycan synthesis were examined in 658 porcine coccygeal ***intervertebral*** ***discs*** in vitro.

Measurements were performed in three tissue fractions: nucleus pulposus, inner and

outer ***annulus*** fibrosis. At 0.80 MPa traction stress, the equilibrium hydration did not change in the nucleus pulposus.

However, in the inner and outer ***annulus***, the equilibrium hydration was reduced, and the change led to an increase of the effective fixed

charge density. Diffusion of solute to the nucleus pulposus was significantly

suppressed at 0.80 MPa traction stress. The fluid flow of the ***intervertebral*** ***disc*** tended to be suppressed

during the creep recovery process after compression. The proteoglycan synthesis rate

in the outer ***annulus*** was markedly suppressed by traction stress of 0.80 MPa for 4 h, but not that in the nucleus pulposus. These

results suggest that a prolonged excessive axial traction stress induces a decrease in tissue hydration in the ***annulus*** fibrosis, and

this may lead to an increase in the fractional volume of solid in the matrix

and tissue osmotic pressure, resulting in diffusion inhibition of solute

and suppression of proteoglycan synthesis. Thus, prolonged and excessive spinal traction may accelerate ***disc*** ***degeneration***

L23 ANSWER 12 OF 18 MEDLINE

AN 92240042 MEDLINE

DN 92240042

TI An observation of ruptured ***annulus*** fibrosis in lumbar discs.

AU Ito S, Yamada Y, Tsuboi S, Yamada Y, Muro T

CS Department of Orthopaedic Surgery, Social Insurance Chukyo Hospital,

Nagoya, Japan.

SO JOURNAL OF SPINAL DISORDERS, (1991 Dec) 4 (4) 462-6.

Journal code: BEQ, ISSN: 0895-0385.

CY United States

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199208

AB To observe anatomical or pathological changes in lumbar ***intervertebral*** ***discs***, discography and computed tomography-discography (CTD) were performed on fresh human

cadavers. The results of discograms and CTD were compared with histological

findings of

cross sections of discs. Preoperative CTD of lumbar disc herniation

was

investigated based on these results. Ruptures of the ***annulus***

fibrosis were divided into two categories: circumferential rupture and radial rupture. In CTD images of fresh human cadavers, most

images of the ***annulus*** fibrosis showed anterior to lateral circumferential rupture. As ***disc*** ***degeneration***

progressed, circumferential rupture tended to coexist with radial rupture

in many cases. In CTD cases of lumbar disc herniation, most images of

ruptures of the ***annulus*** fibrosis showed a posterior radial rupture, which was the route for herniated nucleus. The greater the

degree of degeneration, the more the images tended to show radial ruptures coexisting with circumferential ruptures.

L23 ANSWER 13 OF 18 MEDLINE

AN 92238250 MEDLINE

DN 92238250

TI Quantitative analysis of ***intervertebral*** ***disc*** structure.

AU Iatervood J, Pendergast D J, Hickey D S, Jenkins J P

CS Department of Diagnostic Radiology, University of Manchester, England

SO ACTA RADIOLOGICA, SUPPLEMENTUM, (1986) 369

492-5.

Journal code: 1XY, ISSN: 0365-5954.

CY Sweden

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199207

AB A reduction in signal intensity from the nucleus can be a feature of ***intervertebral*** ***disc*** disease. It has been

established that T1 and T2 relaxation times of the nucleus decrease with age and that

evidence of ***disc*** ***degeneration*** can be determined before

classical clinical features are apparent. A robust multiple point algorithm has been developed which now enables proton density

and T1 and T2 values to be computed for each pixel, providing images which are

effectively spatial maps of these parameters. Such high resolution maps

have provided quantitative data from volunteers, patients and cadavers.

These studies have been carried out with specially constructed coils and the cadaveric information compared with cut sections. The spatial

maps revealed detailed anatomic structures including the laminae of the

annulus and relative levels of hydration. These levels,

which are known to be related to the ability of the disc to withstand compressive loads, can now be measured in vivo. Analysis of the proton density and relaxation times in vivo has demonstrated that both water content and the chemical environment in the nucleus change during aging. The results are consistent with changes in the glycosaminoglycan content and fixed density measured by other chemical and physical techniques. Such detailed methods can be used to investigate the effects of aging and disease on disc structure and have enabled observations to be made of the effects of stress on the normal disc.

L23 ANSWER 14 OF 18 MEDLINE
AN 90214042 MEDLINE
DN 90214042

TI The distribution of calcific deposits in ***intervertebral***
discs of the lumbosacral spine.
AU Feinberg J; Boachie-Adjei O; Bullough P G; Boskey A L
CS Department of Pathology, Hospital for Special Surgery, New York, New York 10021.

NC 5T32.M4-07 (NIDCR)
DE-04141

SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH.
(1990 May) (234) 303-10.
Journal code: DFY. ISSN: 0009-921X.

CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 199007
AB The incidence of ***intervertebral*** ***disc*** calcifications (IVDCs) was examined in 52 lumbosacral spines obtained sequentially at autopsy. The presence of calcific deposits was detected by fine-grain roentgenograms. The nature of these deposits was determined by x-ray diffraction, and histologic observations were made. A high prevalence of IVDC, 18 spines of 52, some with multiple deposits, was noted. Calcium pyrophosphate dihydrate (CPPD) deposits were found in 3% of the spines and accounted for 29% of the 42 deposits analyzed. The CPPD deposits occurred at multiple disc levels (an average of four per spine).

AB The incidence of ***intervertebral*** ***disc*** calcifications (IVDCs) was examined in 52 lumbosacral spines obtained sequentially at autopsy. The presence of calcific deposits was detected by fine-grain roentgenograms. The nature of these deposits was determined by x-ray diffraction, and histologic observations were made. A high prevalence of IVDC, 18 spines of 52, some with multiple deposits, was noted. Calcium pyrophosphate dihydrate (CPPD) deposits were found in 3% of the spines and accounted for 29% of the 42 deposits analyzed. The CPPD deposits occurred at multiple disc levels (an average of four per spine). deposits were diffuse, and involved a major portion of the disc (nucleus pulposus).

annulus fibrosis, and endplate) but were not generally associated with histologic ***disc*** ***degeneration***.
Hydroxyapatite (HA) deposits occurred in 12% of the spines, most often in the nucleus pulposus and endplate. The HA deposits appeared as small punctate radiodensities. Roentgenographic evidence of degenerative changes, i.e., disc space narrowing, endplate disruption, desiccation, and osteophyte formation, were present in all but one of the spines containing HA deposits. An additional 19% of the spines had deposits that could not be characterized by x-ray diffraction but were very similar in roentgenographic appearance to HA deposits. No conclusions could be drawn on the relationship between the presence of HA or CPPD and collagen or hexosamine content.

L23 ANSWER 15 OF 18 MEDLINE
AN 89084705 MEDLINE
DN 89084705

TI Metaplastic proliferative fibrocartilage as an alternative concept to herniated ***intervertebral*** ***disc***
AU Lipson S J
CS Department of Orthopedic Surgery, Harvard Medical School, Brigham and Women's Hospital, Boston, Massachusetts.
SO SPINE. (1988 Sep) 13 (9) 1055-60.
Journal code: UXK. ISSN: 0362-2436.

CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198904
AB It is hypothesized on the basis of experimental ***intervertebral*** ***disc*** that herniated disc is actually newly synthesized proliferative metaplastic fibrocartilage and not herniation of pre-existing disc tissue, particularly that of the nucleus pulposus. Human material in selected surgical tissues was examined to test this concept. Histology revealed evidence for proliferative fronts of fibroblastic cells in herniated discs with hypocellular interiors. Hydroxy pyridinium cross-link assay was used to determine the maturity of the collagen. Results indicated, with statistical significance, that herniated disc is a younger tissue than in situ ***annulus*** fibrosis, and that herniated disc is not from the nucleus pulposus, thus supporting the

hypothesis.
L23 ANSWER 16 OF 18 MEDLINE
AN 85134075 MEDLINE
DN 85134075
TI ***Intervertebral*** ***disc*** ***degeneration*** in adult mice with hereditary kyphoscoliosis.
AU Mason R M; Palfrey A J
SO JOURNAL OF ORTHOPAEDIC RESEARCH. (1984) 2 (4) 333-8.
Journal code: JIQ. ISSN: 0736-0266.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198506
AB Breeding experiments confirmed that a hereditary form of kyphoscoliosis in the BDL strain mouse was due to an autosomal recessive gene (ky). Segittal sections of whole vertebral columns from adult homozygous recessive mice (ky/ky) were examined histologically. All mice showed varying degrees of degenerative change in one or more ***intervertebral*** ***discs*** between the fifth cervical and the second thoracic vertebrae. The changes comprised loss of cells, loss of distinction between nucleus pulposus and ***annulus*** fibrosis, loss of characteristic ring-like structure in the ***annulus***, and development of wedge-shaped discs. In most animals, degenerative disc substance protruded from the disc space, usually posteriorly, sometimes anteriorly, and occasionally through the vertebral end plate cartilage. Posterior protrusions impinged on the spinal cord.

L23 ANSWER 17 OF 18 MEDLINE
AN 81184643 MEDLINE
DN 81184643

TI Biochemical changes in ***intervertebral*** ***disc*** ***degeneration***
AU Lyons G; Eisenstein S M; Sweet M B
SO BIOCHIMICA ET BIOPHYSICA ACTA. (1981 Apr 3) 673 (4) 443-53.
Journal code: A0W. ISSN: 0006-3002.
CY Netherlands
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198109

AB The distribution of the principal matrix components, collagen, proteoglycans and water, across the diameter of human normal and

degenerate ***intervertebral*** ***discs*** was compared. Little difference in collagen distribution was noted between normal and degenerate tissue but water and proteoglycan content decreased with degeneration, particularly in the centre of the disc. Proteoglycans of the nucleus pulposus and ***annulus*** fibrosis of normal and degenerate ***intervertebral*** ***discs*** were examined. In comparison with monomers of normal tissues, degenerate disc proteoglycans were of larger average hydrodynamic size and had a higher glucosamine to galactosamine ratio. Proteoglycans were digested with chondroitinase ABC and passed over an HS-Sepharose 2B affinity column. A greater proportion of the keratan sulphate-protein cores from degenerate disc were capable of interaction with the immobilized hyaluronate. Loss of aggregating ability was associated with diminution in size of the core. It is suggested that a large proportion of proteoglycans from normal disc have undergone a degree of degradation in the hyaluronate binding region and that proteoglycan synthesis in this tissue is slower than in degenerate tissue.

L23 ANSWER 18 OF 18 MEDLINE
AN 80006725 MEDLINE
DN 80006725
T1 Factors in the development of the spinal stenosis syndrome.
AU Naylor A
SO JOURNAL OF BONE AND JOINT SURGERY. BRITISH VOLUME. (1979 Aug) 61-B (3)
306-9.
Journal code: HK7. ISSN: 0447-9076.
CY ENGLAND: United Kingdom
DT Journal: Article. (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 198001
AB The spinal stenosis syndrome is a potential hazard when congenital or developmental narrowing of the bony canal, particularly in its lateral recesses where it can be demonstrated by axial tomography, places emergent nerve root and its blood supply at risk to further small compressive elements. When lumbar ***disc***
degeneration
allows rotational and lateral instability, posterolateral bulging of the ***annulus*** fibrosis into the root canal occurs when weight is taken on the ipsilateral lower limb. Symptoms of the spinal stenosis syndrome do

not arise until the development of this instability. To relieve the symptoms, the nerve root must be freely mobilised and decompressed by full lateral decompression, with partial or total facetectomy if necessary, by enucleation of the ***intervertebral*** ***disc*** and by removal of the posterolateral portions of the annuli fibrosi.

=> s spinal stenosis/ab/bi
156008 SPINAL/BI
74705 STENOSIS/BI
5401617 AB/F/A
820 SPINAL STENOSIS/AB
(SPINAL(V)/STENOSIS/BI (L) AB/F/A)
156008 SPINAL/BI
74705 STENOSIS/BI
2072 SPINAL STENOSIS/BI
(SPINAL(V)/STENOSIS/BI)
L24 2072 SPINAL STENOSIS/AB, BI
=> s L24 and intervertebral disc/ab/bi
14933 INTERVERTEBRAL/BI
26941 DISC/BI
5401617 AB/F/A
1365 INTERVERTEBRAL DISC/AB
(INTERVERTEBRAL(V)/DISC/BI (L) AB/F/A)
14933 INTERVERTEBRAL/BI
26941 DISC/BI
1928 INTERVERTEBRAL DISC/BI
(INTERVERTEBRAL(V)/DISC/BI)
L25 54 L24 AND INTERVERTEBRAL DISC/AB, BI
=> s L25 and (annulus or nucleus?)/ab/bi

2789 ANNULUS/BI
5401617 AB/F/A
2629 ANNULUS/AB
(ANNULUS/BI (L) AB/F/A)
2789 ANNULUS/BI
33306 NUCLEOS/BI
5401617 AB/F/A
17452 NUCLEOS/AB
(NUCLEOS/BI (L) AB/F/A)
33306 NUCLEOS/BI
L26 1 L25 AND (ANNULUS OR NUCLEOS?)/AB, BI
=> d bib ab

L26 ANSWER 1 OF 1 MEDLINE
AN 80006725 MEDLINE
DN 80006725
T1 Factors in the development of the ***spinal***

stenosis
syndrome.
AU Naylor A
SO JOURNAL OF BONE AND JOINT SURGERY. BRITISH VOLUME. (1979 Aug) 61-B (3)
306-9.
Journal code: HK7. ISSN: 0447-9076.
CY ENGLAND: United Kingdom
DT Journal: Article. (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals; Priority Journals
EM 198001
AB The ***spinal*** ***stenosis*** syndrome is a potential hazard when congenital or developmental narrowing of the bony canal, particularly in its lateral recesses where it can be demonstrated by axial tomography, places the emergent nerve root and its blood supply at risk to further small compressive elements. When lumbar disc degeneration allows rotatory and lateral instability, posterolateral bulging of the ***annulus***

fibrosis into the root canal occurs when weight is taken on the ipsilateral lower limb. Symptoms of the ***spinal***
stenosis
syndrome do not arise until the development of this instability. To relieve the symptoms, the nerve root must be freely mobilised and decompressed by full lateral decompression, with partial or total facetectomy if necessary, by enucleation of the ***intervertebral***
disc and by removal of the posterolateral portions of the annuli fibrosi.

=> s L25 and (implant? or allograft?)/ab/bi
129989 IMPLANT/BI
5401617 AB/F/A
84121 IMPLANT/AB
(IMPLANT/BI (L) AB/F/A)
129989 IMPLANT/BI
281209 TRANSPLANT/BI
5401617 AB/F/A
93364 TRANSPLANT/AB
(TRANSPLANT/BI (L) AB/F/A)
281209 TRANSPLANT/BI
23710 ALLOGRAFT/BI
5401617 AB/F/A
16456 ALLOGRAFT/AB
(ALLOGRAFT/BI (L) AB/F/A)
23710 ALLOGRAFT/BI
L27 3 L25 AND (IMPLANT? OR TRANSPLANT? OR ALLOGRAFT?)/AB, BI

=> d 1- bib ab

YOU HAVE REQUESTED DATA FROM 3 ANSWERS -
CONTINUE? Y(N)Y

L27 ANSWER 1 OF 3 MEDLINE

AN 96272130 MEDLINE
DN 96272130

TI Median corpectomy in cervical spondylotic multisegmental stenosis.

AU Burger R, Tomi J C, Vinos G H, Hofmann E, Reiners K, Roosen K

CS Neurochirurgische Klinik, Universitat Wurzburg
SO ZENTRALBLATT FUR NEUROCHIRURGIE, (1996) 57 (2)
62:9.

Journal code: Y6C, ISSN: 0044-4251.

CY GERMANY, Germany, Federal Republic of
DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199611

AB Cervical median corpectomy as an alternative to laminoplasty and laminectomy has been suggested as an effective treatment for cervical

spondylotic myelopathy (CSM) in cases of multisegmental

spondylotic stenosis. We report on our experience with this procedure with

particular reference to neurological outcome and complications. Median

corpectomy was performed in 17 cases (3 female, 14 male; mean age 59 yrs, (41-80

yrs) with cervical myelopathy (CM) and radiologically diagnosed multisegmental

spondylotic stenosis and spinal cord compression seen on MRI.

The degree of stenosis was determined by means of the modified Pavlov's

index (ratio

between spinal canal width at the level of the

intervertebral

disc and the diameter of the vertebral body itself). 3/17

patients suffered from acute, 4/17 from subacute and 10/17 from chronic

CM. Single

level corpectomy was performed in 9 cases, one and a half

vertebrae were removed in 2 cases and dual level corpectomy was performed in the

remaining 6 cases. All patients received an autologous bone graft

and AO.

anterior plate stabilization or were stabilized as described by

Morschler.

Postoperative follow-up was possible in 16/17 cases over a mean

time of 13.5 months. Myelopathy was graded according to Nurick's scale.

Postoperatively, 12% with chronic CM improved by two grades, 36% (2 pts,

with acute, 3 with subacute and 1 with chronic CM) improved by one grade.

The other patients remained stable, none showed worsening of their myelopathy. Paresis improved in 92%, sensory deficits in 69%, spasticity

in 73%, pain in 60%, and vegetative disturbances in 100% of all

patients presenting these preoperative symptoms respectively. One patient died due

to esophageal perforation and subsequent fatal mediastinitis caused by

screw loosening 4 months following surgery and after initial neurological

improvement. 4 other patients experienced screw loosening, three with

osteolysis, one remained clinically asymptomatic with concomitant graft

displacement in two of these. One patient had to be re-operated due to a

hematoma at the iliac crest and 2 suffered from a pelvic fracture of the

spina ilieca at the site of graft removal. With respect to the

neurological improvement, especially to the motor function and spasticity,

median corpectomy can be regarded as an effective procedure in selected

cases with cervical myelopathy, even when treatment related complications

are taken into consideration.

L27 ANSWER 2 OF 3 MEDLINE

AN 94351232 MEDLINE
DN 94351232

TI Clinical application of AW glass ceramic prosthesis in spinal surgery.

AU Yamamoto T, Shimizu K
CS Department of Orthopaedic Surgery, Faculty of Medicine, Kyoto

University.

SO NIPPON SEIKAIGEKA GAKKAI ZASSHI, JOURNAL OF

THE JAPANESE ORTHOPAEDIC

ASSOCIATION, (1994 Jul) 68 (7) 505-15

Journal code: JON, ISSN: 0021-5325.

CY Japan
DT Journal; Article; (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 199412

AB Bone prosthesis of apatite- and wollastonite-containing glass-ceramic

(AW-GC), a new synthesized material, is known to be excellent in

bonding directly with adjacent living bone tissue, in having strong

mechanical strength and no toxic effects, in experimental studies

surgery, massive and strong bone grafts are required for reconstruction of the

spinal column affected by a tumor, trauma, or a degenerative

disease.

However, utilization of bone ***allograft*** is not yet socially accepted in Japan and also there are other barriers against the supply of

allograft bone. In the present study, AW-GC bone prosthesis was

used for reconstructive surgery for various spinal diseases and follow-up

studies were performed for an average of 14.9 months (range: 2-36 mo). The

clinical results were satisfactory. Thirty patients (males: 17 and females: 13) with an age range of 40-75 years (mean: 55.3 years)

were reviewed in this study. Preoperative diagnoses for which an

AW-GC prosthesis was required were as follows: vertebral prosthesis: 15

with metastatic tumor of the spine, 3 with burst fracture of the thoraco-lumbar

spine; vertebral spacer: 6 with degenerative spondylolisthesis, 2

with isthmus spondylolisthesis, 2 with lumbar ***intervertebral***

disc herniation, and one with spinal canal stenosis.

Patient's satisfaction, roentgenographic evaluation, laboratory data on blood

urine, and toxic effects were examined in these patients. As a result, the

patient's satisfaction for the AW-GC bone prosthesis was high, and the

initial fixation and long term stability were excellent. For kyphotic deformity and scoliosis, postoperative correction could be

maintained in two patients where correction was attempted, and the usefulness of

AW-GC prosthesis as a spinal prosthesis was confirmed. Good bone

formation around the prosthesis was observed with time. The clear zone

(radiolucet line between ceramic and bone) tended to decrease or disappear.

There were:

no systemic or local toxic side-effects considered to be due to the

AW-GC bone prosthesis, or no abnormalities in the laboratory data. These

findings suggested that the AW-GC bone prosthesis is a new biomaterial

with excellent properties which can be successfully substituted for

bone graft in reconstructive spinal surgery.

L27 ANSWER 3 OF 3 MEDLINE

AN 86162536 MEDLINE
DN 86162536

TI Instrumentation of the lumbar spine. An overview.

AU Bradford D S

SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH, (1986 Feb) (203) 209-18.

Journal code: DFY; ISSN: 0009-921X

CY United States

DT Journal: Article: (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM 198607

AB The use of any ***implant*** system to promote arthrodesis of any

segment of the spine is only as good as the technique of surgical arthrodesis. The success of the ***implant*** depends, in short,

on

the success of the arthrodesis. A successful arthrodesis depends on meticulous soft-tissue debridement, decontamination, and copious iliac bone

grafting or ***allograft*** bone grafting if autogenous graft is deficient. If the anterior approach is used, complete and thorough debridement of the ***intervertebral*** ***disc*** and cartilaginous end-plates with meticulous bone grafting of the interspace

is essential for a successful fusion. A pseudarthrosis in the presence of

an ***implant*** will eventually lead to ***implant*** failure. In

implants placed anteriorly, this may lead to severe consequences

and complications. If ***implants*** are used anteriorly and anterior

arthrodesis is not achieved, a posterior spinal fusion should be carried

out. All ***implants*** used anteriorly should be placed laterally

away from great vessels, particularly the femoral artery. If separation

from the vessels and the ***implant*** is not possible, the ***implant*** should either be removed or the vessels should

be protected with a Dacron graft placed over any protruding metal.

=> s 116 or 118 or 121 or 124

L28 5231 L16 OR L18 OR L21 OR L24

=> s 128 and allograft?/ab/bi

23710 ALLOGRAFT?/BI

5401617 AB/FA

16456 ALLOGRAFT?/AB

(ALLOGRAFT?/BI (L) AB/FA)

L29 23710 ALLOGRAFT?/BI

18 L28 AND ALLOGRAFT?/AB/BI

=> d 1- b/b ab

YOU HAVE REQUESTED DATA FROM 18 ANSWERS -
CONTINUE? Y/N)Y

L29 ANSWER 1 OF 18 MEDLINE

AN 200078006 MEDLINE

DN 20078006

TI Use of ***allograft*** bone for posterior spinal fusion in

idiopathic ***scoliosis***

AU Grogan D P, Kalen V, Ross T J, Gauden K J, Pugh L J

CS Shriners Hospital for Children, Tampa, FL 33612-9499, USA.

SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH, (1999 Dec) (369) 273-8.

Journal code: DFY; ISSN: 0009-921X.

CY United States

DT Journal: Article: (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM 200003

EW 20000304

AB Eighty-seven adolescents with ***idiopathic***

scoliosis (77

female and 10 male patients) who underwent posterior spinal fusion with

instrumentation using only ***allograft*** bone for graft material

were evaluated retrospectively. The average age at surgery was 14 years 3

months. Each patient had a minimum 2-year followup, with an average of 3

years 5 months followup. The average preoperative curve was 39 degrees

thoracic (range: 31 degrees-90 degrees) and 52 degrees lumbar (range: 21

degrees-65 degrees). At followup, the thoracic curve measured an average

of 35 degrees and the lumbar curve measured an average of 34 degrees. The

average loss of correction from the immediate postoperative period until

last followup was 6.5 degrees or 11% in the thoracic curve and 10 degrees

or 19% in the lumbar curve. There were seven reoperations: one of these

reoperations involved repair of a pseudarthrosis. There was one clinical

infection. The typical patient had a 2-ounce ***allograft*** at an

average cost of \$840. The patients' average loss of correction, complication rate, and reoperation rate compare favorably with

results reported in other series using autograft bone. The authors of this

study showed the ability of ***allograft*** bone to produce reliable results

with a satisfactory outcome. The potential advantages of using ***allograft*** must be weighed against the potential

disadvantages before recommending its routine use.

L29 ANSWER 2 OF 18 MEDLINE

AN 199921337 MEDLINE

DN 9921337

TI Modified open-door laminoplasty for treatment of neurological deficits in

younger patients with congenital ***spinal*** ***stenosis***

analysis of clinical and radiographic data.

AU Shaffrey C J, Wiggins G C, Pientilli C B, Young J N, Lovell L

R

CS Department of Neurological Surgery, Henry Ford Hospital, Detroit, Michigan

48202, USA

SO JOURNAL OF NEUROSURGERY, (1999 Apr) 90 (4 Suppl) 170-7.

Journal code: JD3; ISSN: 0022-3083.

CY United States

DT Journal: Article: (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals; Cancer Journals

EM 199906

EW 19990604

AB OBJECT: Multilevel anterior cervical decompressive surgery and fusion

effectively treats cervical myeloradiculopathy that is caused by severe

cervical ***spinal*** ***stenosis***, but degenerative changes at

adjacent vertebral levels frequently result in long-term morbidity. The

authors performed a modified open-door laminoplasty procedure in which

allograft bone and titanium miniplates were used to treat cervical

myeloradiculopathy in younger patients with congenital canal stenosis

while maintaining functional cervical motion segments. Pre- and postoperative magnetic resonance imaging and/or computerized

tomography myelography were performed to assess changes in cervical spinal canal

dimensions. Pre- and postoperative flexion-extension radiographs were

compared to determine the residual motion of the targeted operative

segments. METHODS: Twenty younger patients (average age 37.7 years)

underwent modified open-door laminoplasty for treatment of myelopathy or

myeloradiculopathy related to significant cervical ***spinal***

stenosis with or without associated central or lateral ***disc***

herniation or foraminal stenosis. These surgeries

were performed during a 2-year period and follow-up review remains ongoing

(average follow-up period 21.6 months). Reconstructive procedures

were performed on an average of 4.1 levels (range three-six). Operative time averaged 186 minutes (range 93-229 minutes). Average blood loss was 305 ml (range 100-650 ml). No cases were complicated by neurological deterioration, infection, wound breakdown, graft displacement, or hardware failure. The patient's Nurick Scale grade improved from a preoperative average of 1.8 to a postoperative average of 0.5. Pre- and postoperative sagittal spinal diameter averaged 11.2 mm (8-14 mm) and 16.6 mm (13-19 mm), respectively. The sagittal compression ratio (sagittal/lateral x 100%) increased from 48% pre- to 72% postoperatively. The spinal canal area increased an average of 55% (range 19-127%). In patients in whom pre- and postoperative flexion-extension radiographs were obtained, residual neck motion was maintained. No patient developed or shoulder pain. Neurological symptoms improved in all patients, with

total relief of myelopathy in 50% and partial improvement in 50%.
CONCLUSIONS: Modified open-door laminoplasty with ***allograft*** bone and titanium miniplates effectively treats neurological deficits in younger patients with congenital and ***spinal*** stenosis***. Although long-term results are unknown, short-term results are good and there is a low incidence of complications.

L29 ANSWER 3 OF 18 MEDLINE
 AN 1999014919 MEDLINE
 DN 99014919
 TI Chondromyxoid fibroma of bone presenting as chronic back pain [published erratum appears in J Manipulative Physiol Ther 1999 Feb;22(2):122].
 AU Schmidt R G, Reddy C S, Applegate T D, Ghabra M
 CS Musculoskeletal Tumor and Limb Reconstruction Center, Bala Cynwyd, PA, USA
 SO JOURNAL OF MANIPULATIVE AND PHYSIOLOGICAL THERAPEUTICS. (1998 Oct) 21 (8) 564-7.
 Journal code: JY5 ISSN: 0161-4754
 CY United States
 DT Journal Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 AB 199903
 AB OBJECTIVE: To discuss a case of chondromyxoid fibroma presenting with low

back pain. **CLINICAL FEATURES:** A 50-yr-old man had an 8-yr history of low back pain. This was diagnosed and treated as arising from the disc and caused by ***spinal*** stenosis***. Magnetic resonance imaging findings supported the clinical findings. Years later, a plain radiograph of the pelvis revealed an incidental abnormality of the right ilium, and the patient was subsequently referred to a musculoskeletal tumor center for treatment. **INTERVENTION AND OUTCOME:** The lesion was surgically removed and the defect was reconstructed via bone ***allograft***. **CONCLUSION:** Such tumors are a rare cause of back pain. Tumors of the pelvis can at times present as back pain. In cases of refractory back pain, an X-ray of the pelvis can be a useful screening investigation. Chondromyxoid fibromas are rare tumors best treated by excision if they are amenable or by curettage and bone grafting procedures.

L29 ANSWER 4 OF 18 MEDLINE
 AN 199815569 MEDLINE
 DN 98315569
 TI Defatted, gas-sterilized cortical bone ***allograft*** for posterior lumbar interbody vertebral fusion.
 AU Kakiuchi M, Ono K
 CS Department of Orthopaedic Surgery, Osaka Police Hospital, Japan.
 SO INTERNATIONAL ORTHOPAEDICS. (1998) 22 (2) 69-76.
 Journal code: GRF ISSN: 0341-2695
 CY GERMANY: Germany, Federal Republic of
 DT Journal Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 AB 19981104
 EW 19981104
 AB In posterior lumbar interbody vertebral fusion operations, variously sized, rectangular shaped, defatted, freeze-dried, gas-sterilized cortical bone ***allograft*** were used in combination with cancellous bone autografts from excised posterior elements. Single-level fusion, with or without internal fixation, was undertaken in 38 patients aged 50 years or less with ***disc*** herniation*** or a failed discectomy (the younger group) and in 33 women aged 60 years or more with degenerative spondylolisthesis (the older group). Of the various observable

indicators of union, changes in the ***allograft*** host interface alone proved to be of practical use. The incidence of nonunion in patients managed with pedicle screws, with a hook and rod system or without internal fixation was 0 of 8 patients, 1 of 14 patients, and 3 of 16 patients, respectively, in the younger group, and 0 of 11 patients, 0 of 8 patients, and 2 of 14 patients, respectively, in the older group. Of the six patients with nonunion, three had persistent low back pain and only two had mobility of the fixed segment which was evident on lateral radiographs during flexion and extension. No patient had graft collapse. The decrease in the height of the intervertebral space, chiefly due to settlement of the ***allograft*** into the vertebral bodies, in the younger and older groups averaged 1.1 and 1.6 mm, respectively. We concluded that this simplified technique is mechanically sound and effective in maintaining the height of the intervertebral space. Even when the graft failed to unite, fibrous union could be obtained without graft collapse. **Combination** with a simple internal fixator, such as a compression rod, facilitates bone union.

L29 ANSWER 5 OF 18 MEDLINE
 AN 1998077569 MEDLINE
 DN 98077569
 TI Tricalcium phosphate ceramics and ***allografts*** as bone substitutes for spinal fusion in ***idiopathic*** scoliosis*** as bone substitutes for spinal fusion in ***idiopathic*** scoliosis***: comparative clinical results at four years.
 AU Le Huec J C, Laspit E, Delavigne C, Clement D, Charvreaux D, Le Rebeller A
 CS Department d'Orthopedie, CHU Pellegrin Tropic, Bordeaux, France.
 SO ACTA ORTHOPAEDICA BELGICA. (1997 Sep) 63 (3) 202-11.
 Journal code: JG2 ISSN: 0001-6462.
 CY Belgium
 DT Journal Article: (JOURNAL ARTICLE)
 LA English
 EM 199803
 AB The authors present the results of a comparative study of two posterolateral arthrodeses for scoliosis performed using COTREL DUBOUSSE I instrument-ation. Fifty-four consecutive patients underwent surgery for ***idiopathic*** scoliosis*** using the same technique.

Thirty
received a graft consisting of a mixture of corticocancellous
autologous
and allogenic bone frozen at -80 degrees, and 24 patients were
grafted
with a mixture of cortico-cancellous autologous bone and sticks of
urethane phosphate (TCP, Biosorb, SBM, Lourdes, France). All
patients
were seen at three, six and twelve months, then once a year for at
least
four years with clinical and radiological evaluation at each visit. At
the
final follow up visit, no radiologic signs of pseudarthrosis were
found
in either group with a minimum follow-up of 4 years. The
appearance of
bone callus was considered satisfactory at 6 months in all cases;
moreover
callus seemed to be more important in the TCP series, although this
assessment was subjective. TCP resorption was total after 2 years,
while
allograft fragments were visible on x-rays after 2 years.
Minor
mechanical complications occurred but did not influence the
results. Loss
of correction was 8% of that initially obtained in the
allograft
group and 2% in the TCP group. Loss of correction did not progress
after 6
months in the TCP group and after 2 years in the ***allograft***
group. Based upon this experience, the use of synthetic bone
substitutes
such as TCP would appear to be a valuable alternative to
allografts in posterolateral spinal arthrodesis for
idiopathic, ***scoliosis***, and it would eliminate the
risk of
viral contamination inherent to ***allograft*** implantation. To
our
knowledge, there have been no previous comparative studies
concerning the
use of urethane phosphate versus ***allograft*** in the
literature.

L29 ANSWER 6 OF 18 MEDLINE
AN 97345470 MEDLINE
DN 97345470
TI ***Allograft*** bone use during instrumentation and fusion in
the
treatment of adolescent ***idiopathic***, ***scoliosis***,
AU Bianco J S, Sears C J
CS Department of Orthopedic Surgery, University of Virginia Health
Sciences
Center, Charlottesville, USA
SO SPINE. (1997 Jun 15) 22 (12) 1338-42.
Journal code: UXX. ISSN: 0362-2436
CY United States
DT Journal: Article. (JOURNAL ARTICLE)

LA English
FS Priority Journals
EM 199710
EW 19971003
AB STUDY DESIGN: In a retrospective study, 25 patients
undergoing posterior
spine fusion with ***allograft*** bone and Correl-Dubouset
instrumentation were assessed regarding the efficacy of
allograft
bone use. OBJECTIVES: To determine if ***allograft*** bone
use had
deleterious effects regarding fusion rates and maintenance of
deformity
correction. SUMMARY OF BACKGROUND DATA: Previous
studies using
allograft bone in adult lumbar spine fusion models have
consistently shown poor fusion rates. Studies in the pediatric
population
have been more favorable but in idiopathic cases have used cast or
brace
immobilization with Harrington instrumentation. METHODS:
Twenty-five
skeletal immature patients with is average age of 14 +/- 4 years
and an
average follow-up of 4 +/- 2 years (minimum of 3 years) were
evaluated
with anteroposterior, lateral, and oblique radiographs to assess the
fusion mass. RESULTS: Preoperative curves averaged 55.5
degrees and
immediate correction averaged 58% with an average postoperative
curve of
23.2 degrees. Loss of correction at final follow-up was 3.7 degrees.
No
pseudarthroses were identified clinically or radiographically.
CONCLUSIONS: ***Allograft*** bone use in the pediatric
patient with
idiopathic, ***scoliosis***, undergoing rigid segmental
instrumentation dependably results in fusion with good
maintenance of
correction.

L29 ANSWER 7 OF 18 MEDLINE
AN 97304192 MEDLINE
DN 97304192
TI Histochimical demonstration of nitric oxide in herniated lumbar
discs. A
clinical and animal model study.
AU Hashizume H, Kawakami M, Nishi H, Tamaki T
CS Department of Orthopedic Surgery, Wakayama Medical College,
Japan.
SO SPINE. (1997 May 15) 22 (10) 1080-4.
Journal code: UXX. ISSN: 0362-2436
CY United States
DT Journal: Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199710

EW 19971001
AB STUDY DESIGN: This study was designed to localize the cells
that produce
nitric oxide in a lumbar ***disc***, ***herniation*** by
histochemical method, including in situ hybridization.
OBJECTIVE: To
clarify which cells in herniated lumbar discs produce nitric oxide.
SUMMARY OF BACKGROUND DATA: It was reported that
herniated lumbar
intervertebral disc specimens in culture are capable of producing
nitric
oxide. METHODS: Surgical specimens from lumbar ***disc***,
herniation were examined to determine nitric oxide
synthase
histologically using nicotinamide adenine dinucleotide phosphate
diaphorase histochemistry. ***Allografts*** of intervertebral
disc
materials were placed on the epidural space at L6 level in the rat.
Nitric
oxide synthase was examined in the applied tissues using
nicotinamide
adenine dinucleotide phosphate diaphorase histochemistry and in
situ
hybridization histochemistry. RESULTS: Nicotinamide adenine
dinucleotide
phosphate diaphorase (nitric oxide synthase) positive cells were
observed
in 2 (40%) of 5 herniated disc materials in patients. The positive
cells
were mainly in granulation tissue around intervertebral disc
materials. In
animal models, nitric oxide synthase-positive cells were observed
in all
specimens at 1 and 2 weeks postoperatively. Newly formed vessels
and small
round cells in granulation tissue around the grafted intervertebral
disc
showed positive reaction. In situ hybridization demonstrated the
expression of inducible isoform of nitric oxide synthase messenger
RNA
(mRNA) identical to small round cells around the applied
intervertebral
disc. CONCLUSION: Nitric oxide in a lumbar ***disc***,
herniation is mainly produced by cells in granulation
tissue
around the herniated intervertebral disc.

L29 ANSWER 8 OF 18 MEDLINE
AN 97304191 MEDLINE
DN 97304191
TI The role of phospholipase A2 and nitric oxide in pain-related
behavior
produced by an ***allograft*** of intervertebral disc material to
the
sciatic nerve of the rat.
AU Kawakami M, Tamaki T, Hashizume H, Weinstein J N, Meller
ST

CS Department of Orthopedic Surgery, Wakayama Medical College, Japan.
 SO SPINE. (1997 May 15) 22 (10) 1074-9.
 Journal code: UXK ISSN: 0362-2436.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199710
 EW 19971001
 AB STUDY DESIGN: To elucidate the pathomechanisms of radicular pain secondary to lumbar ***disc*** ***herniation***. OBJECTIVES: To evaluate whether intervertebral disc material applied to the sciatic nerve produces hyperalgesia, and if the hyperalgesia is influenced by inhibitors of phospholipase A2 and nitric oxide synthase. SUMMARY OF BACKGROUND DATA: Previously, the authors reported that application of nucleus pulposus and annulus fibrosus material to the lumbar epidural space produces different forms of hyperalgesia (mechanical versus thermal), with different and distinct histologic changes. Additional pharmacologic studies showed that phospholipase A2 and nitric oxide are involved in the mechanisms that produce the mechanical and thermal hyperalgesia, respectively. N omega-nitro-L-arginine methyl ester and meperidine are relatively selective inhibitors of nitric oxide synthase and phospholipase A2, respectively. However, it is not known what the relation is between the hyperalgesia produced and the activation and involvement of phospholipase A2 and production of nitric oxide, or why the application of nucleus pulposus and annulus fibrosus material to the lumbar epidural space produces different types of hyperalgesia. METHODS: Experiments were performed in five groups of rats: The control group (no treatment), the sham group (exposure of the sciatic nerve only), the fat group (***allografted*** fat on the sciatic nerve), the nucleus pulposus group (***allografted*** nucleus pulposus), and the nucleus pulposus + annulus fibrosus group (***allografted*** nucleus pulposus and annulus fibrosus). Withdrawal threshold and latency from mechanical pressure and a radiant heat to hind paws were measured preoperatively and postoperatively. After local anesthetic administration of N theta-nitro-L-arginine methyl ester or meperidine into the operated site, sensitivities to noxious stimuli were

reevaluated after treatment. RESULTS: Only rats in the nucleus pulposus group showed evidence of mechanical hyperalgesia. However, injection of N theta-nitro-L-arginine methyl ester resulted in evidence of mechanical hyperalgesia in the nucleus pulposus + annulus fibrosus group. Mechanical hyperalgesia was produced in the nucleus pulposus group and after injection of N theta-nitro-L-arginine methyl ester in the nucleus pulposus+annulus fibrosus group, both of which returned to normal after meperidine injection. There were no significant changes in sensitivity to thermal stimuli in any of the experimental groups. CONCLUSION: It appears that phospholipase A2 and nitric oxide play important but different roles in pathomechanisms of radicular pain in lumbar ***disc*** ***herniation***.

L29 ANSWER 9 OF 18 MEDLINE
 AN 97048603 MEDLINE
 DN 97048603
 TI Pathomechanism of pain-related behavior produced by ***allografts*** of intervertebral disc in the rat.
 AU Kawakami M, Tamaki T, Weinstein J N, Hashizume H, Nishi H, Meller S T
 CS Department of Orthopedic Surgery, Wakayama Medical College, Japan.
 SO SPINE. (1996 Sep 15) 21 (18) 2101-7.
 Journal code: UXK ISSN: 0362-2436.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199704
 EW 19970402
 AB STUDY DESIGN: This study was designed to evaluate whether ***allografts*** of intervertebral disc materials produce hyperalgesia in the rat and whether an immune response, pH, or chemicals correlate with the induced hyperalgesia. OBJECTIVE: To elucidate the pathomechanisms of radicular pain secondary to lumbar ***disc*** ***herniation***. SUMMARY OF BACKGROUND DATA: It has been reported that a low pH, an autoimmune reaction, or chemical radiculitis is likely responsible for radicular pain associated with lumbar ***disc*** ***herniation***. In animal studies, it has been shown that hyperalgesia (an increased sensitivity to painful stimuli) involves activation of phospholipase

and nitric oxide synthase. METHODS: Fat, nucleus pulposus, and annulus fibrosus were ***allografted*** into the epidural space at L6 in the rat. Withdrawal response thresholds to mechanical stimuli and response latencies to thermal stimuli on the tail and pH in the applied tissues were measured after surgery. Interleukin-1, phospholipase A2, and nitric oxide synthase were examined in the applied tissues using immunohistochemistry, nicotinamide adenine dinucleotide phosphate-diaphorase histochemistry, and in situ hybridization. RESULTS: ***Allografted*** fat did not produce hyperalgesia. ***Allografts*** of nucleus pulposus and nucleus pulposus plus annulus fibrosis showed evidence of mechanical and thermal hyperalgesia, respectively. There were no observed changes in pH over time. Although interleukin-1 was demonstrated in all applied tissues, phospholipase A2 was only observed around the applied nucleus A2 was only observed around the applied nucleus pulposus and nucleus pulposus plus annulus fibrosis. Nitric oxide synthase was only markedly increased around the applied tissues. CONCLUSION: The nucleus pulposus and annulus fibrosus produce different forms of hyperalgesia (mechanical vs. thermal) associated with different and distinct immunohistochemical changes. It is possible that radicular pain of a lumbar ***disc*** ***herniation*** results from chemicals, such as phospholipase A2 and nitric oxide.

L29 ANSWER 10 OF 18 MEDLINE
 AN 95171205 MEDLINE
 DN 95171205
 TI Lumbosacral arthrodesis with Ions technique. Review of 186 cases.
 AU Beguinisain J L, Martinez Peric R, Barrios R H, Villas C
 CS Department of Orthopedic Surgery and Traumatology, University Clinic, School of Medicine, University of Navarra, Pamplona, Spain.
 SO EUROPEAN SPINE JOURNAL. (1994) 3 (3) 169-71.
 Journal code: B9Y ISSN: 0940-6719.
 CY GERMANY; Germany, Federal Republic of
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199506
 AB A retrospective study was carried out of 186 patients surgically treated by lumbosacral arthrodesis using Ions plates from 1981 to 1989 with an

average follow-up of 7.2 years (range 3-11). The average age of the patients was 42.2 years (range 11-71). The indication for surgery was a herniated disc and segmentary instability in 29% (54 patients), spondylolysis or spondylolisthesis in 26.3% (49 patients), arthrosis in 11.3% (21 patients), instability (narrowing of the disc space and zygapophysial hypertrophy) and stenosis in 5.9% (11 patients), 5.4% (10 patients), fractures in 0.5% (1 patient) and combinations of the above in 21.5% (40 patients who mainly had a herniated disc and associated ***spinal*** stenosis***). Ilac crest autograft was used in 33 cases (17.7%), bank ***allgraft*** in 5 (2.6%), and in the other 148 patients the graft was obtained from the arthrodesis bed. After follow-up we observed loosening of the screws in 20 patients and screw rupture in 10. We only documented 2 cases of pseudarthrosis using dynamic X-radiography. We conclude that the Louis plate is a simple method that leads to lumbosacral arthrodesis with a low rate of pseudarthrosis.

L29 ANSWER 11 OF 18 MEDLINE
AN 95149199 MEDLINE
DN 95149199
TI Experimental study of intervertebral disc ***allgraft*** in the dog.
AU Katsura A; Hukuda S
CS Department of Orthopaedic Surgery, Shiga University of Medical Science.
Shiga, Japan.
SO SPINE, (1994 Nov 1) 19 (21) 2426-32.
Journal code: UYK. ISSN: 0362-2436.
CY United States
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 1995/5
AB STUDY DESIGN: An investigation of the use of intervertebral disc ***allgraft*** as a potential alternative to intervertebral fusion was performed. In 13 adult mongrel dogs, intervertebral disc units cryopreserved after slow freezing were grafted. OBJECTIVES: To evaluate the morphologic and biosynthetic damage caused by cryopreserving canine intervertebral disc before ***allgraft***. STUDY OF BACKGROUND DATA: Cryopreservation did not alter the normal histologic appearance. The metabolic activity, measured by 35S-sulfate

incorporation, was observed to be 44% of the fresh control. METHODS: Transplanted intervertebral discs were examined histologically and radiographically at 12, 24, and 48 weeks after surgery. RESULTS: The ***allgraft*** disc had preserved annular and nuclear architecture with moderate loss of chondrocytes 12 weeks after grafting. However, the intervertebral disc showed evidence of progressive ***disc*** degeneration***. 1 year after transplantation, CONCLUSIONS: More investigation of methods is needed to enhance the viability of the intervertebral disc for successful intervertebral disc ***allgraft***.

L29 ANSWER 12 OF 18 MEDLINE
AN 94351232 MEDLINE
DN 94351232
TI Clinical application of AW glass ceramic prosthesis in spinal surgery.
AU Yamamoto T; Shimizu K
CS Department of Orthopaedic Surgery, Faculty of Medicine, Kyoto University.
SO NIPPON SEIKEIGAKA GAKKAI ZASSHI. JOURNAL OF THE JAPANESE ORTHOPAEDIC ASSOCIATION, (1994 Jul) 68 (7) 505-15.
Journal code: JON. ISSN: 0021-5325.
CY Japan
DT Journal Article; (JOURNAL ARTICLE)
LA Japanese
FS Priority Journals
EM 1994/12
AB Bone prosthesis of apatite- and wollastonite-containing glass-ceramic (AW-GC), a new synthesized material, is known to be excellent in bonding directly with adjacent living bone tissue, in having strong mechanical strength and no toxic effects, in experimental studies. In spinal surgery, massive and strong bone grafts are required for reconstruction of the spinal column affected by a tumor, trauma, or a degenerative disease. However, utilization of bone ***allgraft*** is not yet socially accepted in Japan and also there are other barriers against the supply of ***allgraft*** bone. In the present study, AW-GC bone prosthesis was used for reconstructive surgery for various spinal diseases and follow-up studies were performed for an average of 14.9 months (range: 2.36 mo). The clinical results were satisfactory. Thirty patients (males: 17 and

females: 13) with an age range of 40-75 years (mean: 55.3 years) were reviewed in this study. Preoperative diagnoses for which an AW-GC prosthesis was required were as follows; vertebral prosthesis: 15 with metastatic tumor of the spine, 3 with burst fracture of the thoraco-lumbar spine; vertebral spacer: 6 with degenerative spondylolisthesis, 2 with isthmus spondylolisthesis, 2 with lumbar intervertebral disc***. ***fusion***, and one with spinal canal stenosis. Patients' satisfaction, roentgenographic evaluation, laboratory data on blood and urine, and toxic effects were examined in these patients. As a result, the patient's satisfaction for the AW-GC bone prosthesis was high, and the initial fixation and long term stability were excellent. For kyphotic deformity and scoliosis, postoperative correction could be maintained in two patients where correction was attempted, and the usefulness of AW-GC prosthesis as a spinal prosthesis was confirmed. Good bone formation around the prosthesis was observed with time. The clear zone (radiolucent line between ceramic and bone) tended to decrease or disappear. There were no systemic or local toxic side-effects considered to be due to the AW-GC bone prosthesis, or no abnormalities in the laboratory data. These findings suggested that the AW-GC bone prosthesis is a new biomaterial with excellent properties which can be successfully substituted for bone graft in reconstructive spinal surgery.

L29 ANSWER 13 OF 18 MEDLINE
AN 92308363 MEDLINE
DN 92308363
TI ***Allgraft*** versus autograft bone in ***idiopathic*** scoliosis*** surgery: a multivariate statistical analysis [letter].
AU Lonstein J E
SO JOURNAL OF PEDIATRIC ORTHOPEDICS, (1992 Jul-Aug) 12 (4) 547.
Journal code: HSW. ISSN: 0271-6798.
CY United States
DT Letter
LA English
FS Priority Journals
EM 1992/10
L29 ANSWER 14 OF 18 MEDLINE
AN 91317974 MEDLINE

DN 91317974
 TI ***Allograft*** versus autograft bone in ***idiopathic***
 scoliosis surgery: a multivariate statistical analysis.
 AU Fabry G
 CS Department of Orthopedics, University Hospital Pellenberg,
 Katholieke
 Universiteit, Leuven, Belgium.
 SO JOURNAL OF PEDIATRIC ORTHOPEDICS. (1991 Jul-Aug)
 11 (4) 463-8.
 Journal code: HSW. ISSN: 0271-6798.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199111
 AB The use of autograft versus ***allograft*** bone in scoliosis
 surgery
 is critically evaluated by a multivariate statistical analysis. Two
 groups
 of patients matched for age, angle of curve, and length of fusion,
 forming
 a consecutive series of posterior arthrodesis for ***idiopathic***
 scoliosis, were evaluated. Group A consisted of 83
 patients
 receiving autografts, and group B consisted of 99 patients receiving
 allografts. There was a significant reduction in operation
 time in
 the ***allograft*** group, and blood loss also decreased. After 1
 year
 there was no significant difference in correction of the curve. Given
 the
 problems of discomfort at the donor site scar, we recommend the
 use of
 allograft bone in scoliosis surgery.

L29 ANSWER 15 OF 18 MEDLINE
 AN 91126583 MEDLINE
 DN 91126583
 TI Knot rod distraction instrumentation in lumbosacral arthrodesis.
 AU Nieser R J, Littlefield P D
 CS Division of Orthopaedic Surgery, University of Alabama,
 Birmingham.
 SO SPINE. (1990 Dec) 15 (12) 1356-9.
 Journal code: UYK. ISSN: 0362-2436.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199105
 AB Review of 40 patients undergoing lumbosacral fusions over a
 4-year period
 was done to determine the value, efficiency, and safety of Knot
 rod
 distraction instrumentation. The age range was 30-80 years. Mean
 age was
 51 years. Follow-up was 1-4 years. Twenty patients underwent
 decompression

and fusion for ***spinal***, ***stenosis***, nine underwent
 spinal
 arthrodesis for instability, six underwent the same for
 spondylolisthesis,
 and five underwent fusions for other diagnoses. A posterior midline
 approach was used. Laminar hook sites were prepared, and care was
 taken to
 prevent dural compression or tearing. Balanced distraction was
 done to
 restore soft tissue tension and stability. No attempt was made to
 reduce
 deformity. A posterior and lateral mass fusion augmented with
 allograft bone was performed on all but three patients, in
 whom
 autogenous bone was used. The majority of patients were placed in
 a
 custom-molded lumbosacral orthosis for 3-6 months after operation.
 There
 were no neurologic complications, dural tears, or
 pseudomeningoceles. The
 first sacral laminae were instrumented in 22 patients. Nine of the 40
 patients underwent rod removal. Reasons for removal were pain
 due to
 loosening in five patients and failure of fusion in two. On rod
 removal in
 two patients, no abnormality was found. Insertion within the sacral
 laminae did not lead to neurologic complications. The major
 problem
 appeared to be loosening, which necessitated rod removal in 12%
 of the
 patients. Knot rod distraction instrumentation is a safe and
 effective
 method of internal fixation for lumbosacral fusions.

L29 ANSWER 16 OF 18 MEDLINE
 AN 88228135 MEDLINE
 DN 88228135
 TI ***Allograft*** versus autograft bone in scoliosis surgery.
 AU Dodd C A, Ferguson C M, Freedman L, Houghton G R,
 Thomas D
 CS Nuffield Orthopaedic Centre, Oxford, England.
 SO JOURNAL OF BONE AND JOINT SURGERY. BRITISH
 VOLUME. (1988 May) 70 (3)
 431-4.
 Journal code: HK7. ISSN: 0301-620X
 CY ENGLAND; United Kingdom
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Abridged Index Medicus Journals; Priority Journals
 EM 198809
 AB The results of a study of the use of autograft versus
 allograft
 bone in the surgery of idiopathic adolescent scoliosis are presented.
 Two
 groups of patients, matched for age, sex, level and angle of curve,
 received bone grafts. 20 patients having autogenous bone from the
 iliac

crest and the other 20 having donor bone from a bone bank. Both
 groups had
 otherwise identical posterior fusions and Harrington
 instrumentation.
 There was no difference between the two groups in a blind,
 radiographic
 assessment of bone graft mass at six months, nor in maintenance of
 the
 curve correction over the same period. No major operative
 complications
 nor failures of instrumentation were encountered. There was,
 however, a
 marked reduction in operative time and blood loss in the patients
 receiving donor bone and also a much lower incidence of late
 symptoms
 relating to the operative sites. We conclude that, even in the
 presence of
 adequate iliac crest, the use of bank bone is superior for grafting in
 idiopathic, ***scoliosis*** surgery.

L29 ANSWER 17 OF 18 MEDLINE
 AN 86162536 MEDLINE
 DN 86162536
 TI Instrumentation of the lumbar spine. An overview.
 AU Bradford D S
 SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH,
 (1986 Feb) (203) 209-18
 Journal code: DFY. ISSN: 0009-921X
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Abridged Index Medicus Journals; Priority Journals
 EM 198607
 AB The use of any implant system to promote arthrodesis of any
 segment of the
 spine is only as good as the technique of surgical arthrodesis. The
 success of the implant depends, in short, on the success of the
 arthrodesis. A successful arthrodesis depends on meticulous
 soft-tissue
 debridement, decontamination, and copious iliac bone grafting or
 allograft bone grafting if autogenous graft is deficient. If
 the
 anterior approach is used, complete and thorough debridement of
 the
 intervertebral disc and cartilaginous end-plates with meticulous
 bone
 grafting of the interspace is essential for a successful fusion. A
 pseudarthrosis in the presence of an implant will eventually lead to
 implant failure. In implants placed anteriorly, this may lead to
 severe
 consequences and complications. If implants are used anteriorly and
 anterior arthrodesis is not achieved, a posterior spinal fusion should
 be
 carried out. All implants used anteriorly should be placed laterally
 away
 from great vessels, particularly the femoral artery. If separation
 from

the vessels and the implant is not possible, the implant should either be removed or the vessels should be protected with a Dacron graft placed over any protruberant metal.

L29 ANSWER 18 OF 18 MEDLINE
AN 84045033 MEDLINE
DN 84045033
TI Vertebral body replacement with femoral neck ***allgraft*** and vascularized rib strut graft. A technique for treating post-traumatic kyphosis with neurologic deficit

AU McBride G G; Bradford D S
SO SPINE. (1983 May-Jun) 8 (4) 406-15.
Journal code: UXX. ISSN: 0362-2436.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198402

AB A technique using a vascularized rib pedicle graft and femoral neck ***allgraft*** is presented as a new method of anterior spine fusion in the treatment of symptomatic post-traumatic kyphosis. The cases of six patients are reviewed who were treated surgically from seven months to 24 years following their initial injury. Substantial neurologic improvement was achieved in four patients with incomplete neurologic deficits when the procedure was combined with an anterior spine decompression.

Two patients, one who was neurologically normal and one with complete paraplegia and L-1 pseudarthrosis were relieved of chronic back and radicular pain following this procedure. At the time of followup, complete anterior spine decompression was verified by lateral plainography or computerized axial tomography. All patients were found to have solid anterior spine fusions with a 63% mean improvement in preoperative kyphosis. Early and rapid incorporation of bone grafts had been demonstrated, thus requiring shorter external immobilization periods for the patients.

=> s Interveterebral disc cell#ab/bi

14933 INTERVERTEBRAL/BI
26941 DISC/BI
1872653 CELL#BI
5401617 AB/FA

22 INTERVERTEBRAL DISC CELL#AB
(INTERVERTEBRAL(W)DISC(W)CELL#YBI (L)
AB/FA)

14933 INTERVERTEBRAL/BI
26941 DISC/BI
1872653 CELL#BI
24 INTERVERTEBRAL DISC CELL#BI
(INTERVERTEBRAL(W)DISC(W)CELL#YBI)
L30 24 INTERVERTEBRAL DISC CELL#AB/BI

=> s L30 and (transplant? or implant? or allograft?)ab,bi

281209 TRANSPLANT#BI
5401617 AB/FA
93364 TRANSPLANT#AB
(TRANSPLANT#BI (L) AB/FA)
281209 TRANSPLANT#BI
129989 IMPLANT#BI
5401617 AB/FA
84121 IMPLANT#AB
(IMPLANT#BI (L) AB/FA)
129989 IMPLANT#BI
23710 ALLOGRAFT#BI
5401617 AB/FA
16456 ALLOGRAFT#AB
(ALLOGRAFT#BI (L) AB/FA)
23710 ALLOGRAFT#BI
L31 0 L30 AND (TRANSPLANT? OR IMPLANT? OR ALLOGRAFT?)AB/BI

=> file medline embase biosis inpadoc caplis

=> s L30

2 FILES SEARCHED...

'AB' IS NOT A VALID FIELD CODE

L32 83 L30

=> dup rem L32

PROCESSING COMPLETED FOR L32

L33 36 DUP REM L32 (47 DUPLICATES REMOVED)

=> d l -bib ab

YOU HAVE REQUESTED DATA FROM 36 ANSWERS - CONTINUE? Y(N)?

L33 ANSWER 1 OF 36 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
AN 132171799 INPADOC ED 20000801 EW 200030 UP
20000801 UW 200030
TI METHOD FOR PRODUCING HUMAN
INTERVERTEBRAL ***DISC***
CELLS

IN HANLEY, JR, EDWARD NATHANIEL, GRUBER, HELEN
ELIZABETH
INS HANLEY JR EDWARD NATHANIEL, GRUBER HELEN
ELIZABETH
INA US: US
PA CHARLOTTE-MECKLENBURG HOSPITAL AUTHORITY
PAS CHARLOTTE-MECKLENBURG HOSPITAL
PAA US
DT Patent
PIT US 6080579 A 20000627
AI US 1997-979674 A 19971126
PRAI US 1997-979674 A 19971126
AB There is provided a method for growing human intervertebral cells. Disc tissue is surgically removed from a normal disc of a patient, the tissue is expanded by feeding with a cell stimulant such as a growth factor, cytokine or a bioactive agent to form monolayer primary cell cultures on a plastic mesh such as a nylon mesh. In the case of a growth factor, fetal bovine serum is preferred as it improves cell proliferation and production of appropriate extracellular matrix components. In another aspect of this invention, the monolayer primary cell cultures are seeded in alginate or agarose and fed again with the cell stimulant until three-dimensional cell cultures are formed. The cells are recovered from the alginate or agarose or from monolayer cultures. Re-implantation is carried out using biodegradable carriers or cell suspensions.

L33 ANSWER 2 OF 36 MEDLINE DUPLICATE

AN 2000389628 MEDLINE

DN 20309886

TI ***Interveterebral*** ***disc*** ***cell*** death is dependent on the magnitude and duration of spinal loading

AU Lutz J C; Chun J R
CS Orthopaedic Bioengineering Laboratory, Department of Orthopaedic Surgery, University of California, San Francisco 94143-0514, USA.

journal@rice.usf.edu

NC AR 46173 (NIAMS)

SO SPINE. (2000 Jun 15) 25 (12) 1477-83

Journal code: UXX. ISSN: 0362-2436.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200010

EW 20001002

AB STUDY DESIGN: An in vivo study of the toxic consequences of static

compressive stress on the intervertebral disc. OBJECTIVES: To determine whether disc cell death is correlated with the magnitude and duration of spinal compressive loading. SUMMARY OF BACKGROUND DATA: Static compression in vivo has been demonstrated to induce cell death. Cell death, in turn, has been associated with disc degeneration in humans. There are currently no tolerance criteria for the intervertebral disc that combine both biomechanical and biologic factors, although both have been implicated in cases of accelerated degeneration. METHODS: Mouse tail discs were loaded in vivo with an external compression device. Compressive stress was applied at one of two magnitudes (0.4 and 0.8 MPa) for 7 days, and at one additional magnitude (1.3 MPa) for 1, 3, and 7 days. Midsagittal sections of the discs were stained for apoptosis using the TdT-dUTP terminal nick-end labeling (TUNEL) reaction. Quantal analysis was used to correlate the extent of cell death to the magnitude and duration of loading. RESULTS: The probit transformation of the percentage of dying cells was proportional to the sum of the logarithmic transformations of the compressive stress and the time of loading. CONCLUSIONS: The results of this study demonstrate the feasibility of developing a quantitative correlation between spinal loading and disc degeneration. Such a correlation may be coupled in the future to existing engineering models that predict spinal loading in response to physical exposures and lead to improved definition of the bounds of healthy and unhealthy spinal loading, and ultimately, refined guidelines for low back safety.

L33 ANSWER 3 OF 36 EMBASE COPYRIGHT 2000 ELSEVIER SCI B.V.
 AN 2000263727 EMBASE
 TI The micromechanical environment of ***intervertebral***
 disc
 cells : Effect of matrix anisotropy and cell geometry predicted by a linear model.
 AU Baer A.E.; Setton L.A.
 CS A.E. Baer, Department of Biomedical Engineering, Duke University, Durham, NC 27708, United States
 SO Journal of Biomechanical Engineering, (2000) 122/3 (245-251).
 Refs: 54
 ISSN: 0148-0731 CODEN: JBENDY
 CY United States

DT Journal; Article
 FS 027 Biophysics, Bioengineering and Medical Instrumentation
 LA English
 SL English
 AB Cells of the intervertebral disc exhibit spatial variations in phenotype and morphology that may be related to differences in their local mechanical environments. In this study, the stresses, strains, and dilatations in and around cells of the intervertebral disc were studied with an analytical model of the cell as a mechanical inclusion embedded in a transversely isotropic matrix. In response to tensile loading of the matrix, the local mechanical environment of the cell differed among the anatomic regions of the disc and was strongly influenced by changes in both matrix anisotropy and parameters of cell geometry. The results of this study suggest that the local cellular mechanical environment may play a role in determining both cell morphology in situ and the inhomogeneous response to mechanical loading observed in cells of the disc.

L33 ANSWER 4 OF 36 MEDLINE
 2 AN 2000149740 MEDLINE
 DN 20149740
 TI Changes with age in proteoglycan synthesis in cells cultured in vitro from the inner and outer rabbit annulus fibrosus. Responses to interleukin-1 and interleukin-1 receptor antagonist protein.
 AU Maeda S; Kokubun S
 CS Department of Orthopaedic Surgery, Tohoku University, School of Medicine, Sendai, Japan. s-maeda@mail.cc.tohoku.ac.jp
 SO SPINE, (2000 Jan 15) 25 (2) 166-9
 Journal code: UXX. ISSN: 0362-2436.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 200006
 EIV 20000603
 AB STUDY DESIGN: Proteoglycan synthesis was examined in cells isolated from the inner and outer annulus fibrosus of young and old rabbits. Their responses to interleukin-1 alpha and interleukin-1 receptor antagonist protein were investigated. OBJECTIVES: To evaluate the age-related changes and the anatomically related differences in the function of ***intervertebral*** ***disc*** ***cells***
 SUMMARY OF BACKGROUND DATA: Proteoglycan content in the human

intervertebral disc decreases with age. Age-related changes in ***intervertebral*** ***disc*** ***cell*** function, however, have not been fully investigated. METHODS: Japanese white rabbits aged 2 months (young group) and 3 years (old group) were used. The inner and outer layer of the annulus fibrosus were separated. The proteoglycan synthesis and release were measured in cells cultured with or without human recombinant interleukin-1 alpha and interleukin-1 receptor antagonist protein. RESULTS: The proteoglycan synthesis significantly decreased and the release rate significantly increased in the old rabbits, compared with the young ones. In the inner annulus, the inhibition of proteoglycan synthesis due to interleukin-1 alpha was greater in the old rabbits than in the young ones. In the old rabbits, interleukin-1-induced inhibition was more pronounced in the inner annulus than in the outer annulus. Interleukin-1 receptor antagonist protein suppressed inhibition of proteoglycan synthesis by interleukin-1 alpha in the two layers in both age groups. CONCLUSIONS: Both the decline in proteoglycan synthesis and the increased cell sensitivity to interleukin-1 alpha with age may contribute to the degradation of discs. The increase in cell response to interleukin-1 alpha in the inner annulus of rabbits may explain why the inner annulus and nucleus pulposus degenerate earlier than the outer annulus in human discs. Interleukin-1 receptor antagonist protein could be useful in inhibiting the degradation of the disc.

L33 ANSWER 5 OF 36 CAPLUS COPYRIGHT 2000 ACS
 AN 2000604181 CAPLUS
 TI Optimization of 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester for labeling human ***intervertebral*** ***disc*** ***cells***
 in vitro
 AU Gruber, Helen E.; Leslie, Kelly P.; Ingram, Jane A.; Hanley, Edward N., Jr.
 CS Orthopaedic Research Biology, Carolinas Medical Center, Charlotte, NC, 28232, USA
 SO Biotech, Histochem, (2000) 75(3), 118-123
 CODEN: BIHFIEJ. ISSN: 1052-0295
 PB Lipincott Williams & Wilkins
 DT Journal
 LA English

AB We have assessed the utility of an intracellular fluorochrome, 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester (CFSE), as a tracking label for human intervertebral disk cells in vitro. Although 5 μ M provides adequate intracellular labeling for whole cell fluorescence microscopic identification of labeled cells, 20 μ M was preferable for immunocytochem. localization of paraffin embedded labeled cells. Electron dense vesicles are seen at the ultrastructural level in labeled cells. Discrete vesicular labeling can also be obsd. in whole cell mounts viewed with fluorescence microscopy. Whole cells retain good label for 6 wk. CFSE labeling is relatively easy, nontoxic to cells and nonradioactive. Initial optimization of dose with specific cells types is recommended when confirmation of pos. immunocytochem. is needed for tissue engineering studies.

L33 ANSWER 6 OF 36 MEDLINE DUPLICATE
 3
 AN 2000305619 MEDLINE
 DN 20305619
 TI Regulation of intracellular pH by bovine ***intervertebral***
 disc ***cells***
 AU Raza S; Urban J P; Wilkins R J
 CS University Laboratory of Physiology, Parks Road, Oxford, OX1 3PT, UK
 SO CELLULAR PHYSIOLOGY AND BIOCHEMISTRY, (2000) 10(1-2) 109-15
 Journal code: CCF, ISSN: 1015-8987.
 CY Switzerland
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 20000904
 EW 20000904
 AB Extracellular acidity is an important determinant of intervertebral disc matrix turnover, possibly exerting effects through changes of intracellular pH (pHi). There is, however, little information concerning the ways in which these cells regulate their pHi. Fluorimetric techniques have been used in the present study to measure pH in isolated ***intervertebral*** ***disc*** ***cells***, and to characterise the membrane transport pathways by which it is regulated. Nucleus pulposus cells were obtained from bovine intervertebral discs by standard enzymatic digestion techniques, and loaded with the pH-sensitive fluoroprobe

BCECF. Resting pHi was approximately 6.7 for cells suspended in either HEPES buffered (HBS) or CO₂/HCO₃-buffered (BBS) media. Intrinsic buffering capacity was approximately 19 mM pH unit⁻¹ in HBS and was increased when cells were suspended in BBS. A combination of ion substitution and inhibitor studies for cells at steady-state pH or acidified by exposure to NH₄Cl revealed that in HBS Na⁺ x H⁺ exchange and an H⁺-ATPase extrude acid from these cells. Only one of these two systems, the Na⁺ x H⁺ exchanger, exhibited a sensitivity to pH, identifying it as the regulator of pH under these conditions. In BBS, an additional pathway which was dependent on extracellular Na⁺, extracellular HCO₃⁻ and intracellular Cl⁻ was detected. These properties are consistent with the four ion HCO₃⁻-dependent transporter, although the cation-rich, anion-poor extracellular matrix of the intervertebral disc means that such a pathway has only a marginal role in disc cell pH regulation.

L33 ANSWER 7 OF 36 EMBASE COPYRIGHT 2000 ELSEVIER
 SCI B.V.
 AN 2000261819 EMBASE
 TI Regulation of intracellular pH by bovine ***intervertebral***
 disc ***cells***
 AU Raza S; Urban J P G; Wilkins R J
 CS Dr. R.J. Wilkins, University Laboratory of Physiology, Parks Road, Oxford
 OX1 3PT, United Kingdom. robert.wilkins@physiol.ox.ac.uk
 SO Cellular Physiology and Biochemistry, (2000) 10(3) 109-115)
 Refs: 27
 ISSN: 1015-8987 CODEN: CEBBEW
 CY Switzerland
 DT Journal, Article
 FS 002 Physiology
 LA English
 SL English
 AB Extracellular acidity is an important determinant of intervertebral disc matrix turnover, possibly exerting effects through changes of intracellular pH (pHi). There is, however, little information concerning the ways in which these cells regulate their pHi. Fluorimetric techniques have been used in the present study to measure pHi in isolated ***intervertebral*** ***disc*** ***cells***, and to characterise the membrane transport pathways by which it is regulated.

Nucleus pulposus cells were obtained from bovine intervertebral discs by standard enzymatic digestion techniques, and loaded with the pH-sensitive fluoroprobe BCECF. Resting pHi was approximately 6.7 for cells suspended in either HEPES-buffered (HBS) or CO₂/HCO₃-buffered (BBS) media. Intrinsic buffering capacity was approximately 19 mM pH unit⁻¹ in HBS and was increased when cells were suspended in BBS. A combination of ion substitution and inhibitor studies for cells at steady-state pHi or acidified by exposure to NH₄Cl revealed that in HBS Na⁺ x H⁺ exchange and an H⁺-ATPase extrude acid from these cells. Only one of these two systems, the Na⁺ x H⁺ exchanger, exhibited a sensitivity to pHi, identifying it as the regulator of pHi under these conditions. In BBS, an additional pathway which was dependent on extracellular Na⁺, extracellular HCO₃⁻ and intracellular Cl⁻ was detected. These properties are consistent with the four ion HCO₃⁻-dependent transporter, although the cation-rich, anion-poor extracellular matrix of the intervertebral disc means that such a pathway has only a marginal role in disc cell pHi regulation. Copyright (C) 2000 S. Karger AG, Basel.

L33 ANSWER 8 OF 36 INPADOC COPYRIGHT 2000 EPO
 LEVEL 1
 AN 50459255 INPADOC EW 199925 UP 19991109 UW 199944
 TI METHOD FOR PRODUCING HUMAN
 INTERVERTERBIAL ***DISC***
 CELLS
 IN HANLEY, EDWARD, NATHANIEL, JR.; GRUBER, ELIZABETH, HELEN
 INS HANLEY EDWARD NATHANIEL JR, GRUBER ELIZABETH HELEN
 INA US: US
 PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY; HANLEY, EDWARD, NATHANIEL, JR.; GRUBER, ELIZABETH, HELEN
 PAS CHARLOTTE MECHLENBURG HOSPITAL; HANLEY EDWARD NATHANIEL JR, GRUBER ELIZABETH HELEN
 PAA US: US; US
 TL English, French
 LA English
 DT Patent
 PTT WOAI PUBL. OF THE INT. APPL. WITH INT. SEARCH REPORT

PI WO 9927077 A1 19990603
 DS RW: GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ
 MD RU TJ TM AT BE CH CY DE
 DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG
 CI CM GA GN GW ML
 MR NE SN TD TG
 WU AM AT AT AU AZ BA BB BG BR BY CA CH CN CU
 CZ DE DK EE EE
 ES FI FR GB GR GM HR HU ID IL IS JP KE KG KP KR
 KZ LC LK LR LS LT
 LU LV MD MG MK MN MW MX NZ PL PT RO RU SD
 SE SG SI SK SL TJ TM
 TR TT UA UG US UZ VN YU ZW
 AI WO 1998-0525137 A 19981124
 PRAI US 1997-979674 A 19971126
 OSDW 99-385212
 AB There is provided a method for growing human intervertebral
 cells. Disc
 tissue is surgically removed from a normal disc of a patient, the
 cells
 expanded by feeding with a cell stimulant such as a growth factor,
 or a
 cytokine or a bioactive agent to form monolayer primary cell
 cultures on
 a plastic mesh such as a nylon mesh. In the case of a growth factor,
 fetal bovine serum is preferred as it improves cell proliferation and
 production of appropriate extracellular matrix components. In
 another
 aspect of this invention, the monolayer primary cell cultures are
 seeded
 in alginate or agarose and fed again with the cell stimulant until
 three-dimensional cell cultures are formed. The cells are recovered
 from
 the alginate or agarose or from monolayer cultures.
 Re-implantation is
 carried out using bioreabsorbable carriers or cell suspensions.

L33 ANSWER 9 OF 36 INPADOC COPYRIGHT 2000 EPO
 LEVEL 1
 AN 113020209 INPADOC ED 19990916 EW 199936 UP
 19990916 UW 199936
 TI METHOD FOR PRODUCING HUMAN
 INTERVERTEBRAL **DISC***
 CELLS
 IN EDWARD NATHANIEL HANLEY JR.; ELIZABETH HELEN
 GRUBER
 INS HANLEY EDWARD NATHANIEL JR. GRUBER
 ELIZABETH HELEN
 PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY
 PAS CHARLOTTE-MECHLENBURG HOSPITAL
 DT Patent
 PIT AUA1 CON4P. SPEC. OPEN TO PUB. INSP.
 PI AU 9916045 A1 19990615
 AI AU 1999-16045 A 19981124
 PRAI US 1997-979674 A 19971126
 WO 1998-US25137 W 19981124

L33 ANSWER 10 OF 36 MEDLINE DUPLICATE
 4
 AN 2000091755 MEDLINE
 DN 20091755
 TI Viscoclastic properties of ***intervertebral*** **disc***
 cells*. Identification of two biomechanically distinct cell
 populations.
 AU Guillek F, Ting-Bell H P, Baer A E, Trickey W R, Erickson G
 R, Setton L A
 CS Department of Surgery, Duke University Medical Center,
 Durham, North
 Carolina, USA.
 NC AR43876 (NLAMAS)
 AG15768 (NLA)
 SO SPINE. (1999 Dec 1) 24 (23) 2475-83.
 Journal code: UXK. ISSN: 0362-2436.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 200004
 EW 20000403
 AB STUDY DESIGN: A combined experimental and theoretical
 biomechanical study
 to quantify the mechanical properties of living cells of the porcine
 intervertebral disc. OBJECTIVES: To quantify zonal variations in
 the
 mechanical properties and morphology of cells isolated from the
 intervertebral disc. SUMMARY OF BACKGROUND DATA:
 Cellular response to
 mechanical stimuli is influenced by the mechanical properties of
 cells and
 of the extracellular matrix. Significant zonal variations in
 intervertebral disc matrix properties have been reported. No
 information
 is currently available on the corresponding regional variations in the
 mechanical properties of ***intervertebral*** **disc***
 cells*. despite evidence of significant differences in
 cellular
 phenotype and biologic response to loading. METHODS: The
 micropipette
 aspiration test was used in combination with a three-parameter
 viscoelastic solid model to measure the mechanical properties of
 cells
 isolated from the annulus fibrosus, transition zone, and nucleus
 pulposus.
 RESULTS: ***Intervertebral*** **disc*** **cells***
 exhibited
 viscoelastic solid behaviors. Highly significant differences were
 observed
 in the morphology, cytoskeletal arrangement, and biomechanical
 properties
 of the nucleus pulposus cells as compared with annulus fibrosus or
 transition zone cells. Cells of the nucleus pulposus were
 approximately
 three times stiffer and significantly more viscous than cells of the

annulus fibrosus or transition zone. CONCLUSIONS: The findings
 of this
 study provide new evidence for the existence of two
 biomechanically
 distinct cell populations in the intervertebral disc. These
 differences in
 mechanical behavior may be related to observed differences in the
 cytoskeletal architecture between these cells, and may further play
 an
 important role in the development, maintenance, and degeneration
 of the
 intervertebral disc.

L33 ANSWER 11 OF 36 MEDLINE DUPLICATE
 5
 AN 1999386018 MEDLINE
 DN 99386018
 TI The effect of hydrostatic pressure on intervertebral disc
 metabolism.
 AU Hutton W C, Elmer W A, Boden S D, Hyon S, Tenbakek Y,
 Tomita K, Har G A
 CS Department of Orthopaedics, Emory University School of
 Medicine, Atlanta,
 Georgia, USA.
 SO SPINE. (1999 Aug 1) 24 (15) 1507-15.
 Journal code: UXK. ISSN: 0362-2436.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199912
 EW 19991201
 AB STUDY DESIGN: By the use of pressure vessels, hydrostatic
 pressure was
 applied to ***intervertebral*** **disc*** **cells***
 cultured in an alginate. OBJECTIVE: To test the hypothesis that
 hydrostatic pressure directly affects the synthesis of collagen and
 proteoglycan by the ***intervertebral*** **disc***
 cells*
 SUMMARY OF BACKGROUND DATA: The influence of
 compression (both
 hydrostatic and mechanical) on chondrocyte metabolism was
 examined in a
 number of earlier studies. However, in most of these studies,
 articular
 cartilage, not intervertebral disc, was used, and in none of these was
 hydrostatic pressure applied to ***intervertebral***
 disc*
 cells* cultured in alginate. METHODS: Fresh cells were
 harvested
 from the lumbar intervertebral discs of dogs. Before their
 suspension in
 an alginate gel system, the cells were plated and expanded until
 they
 reached confluence. Then, by use of the alginate gel system, the
 cells
 were exposed (for up to 9 days) to specific values of hydrostatic

pressure inside two stainless steel pressure vessels. One vessel was kept at 1 MPa and the other at atmospheric pressure. The effects of 1 MPa were compared against atmospheric pressure by measuring the incorporation of [3H]-proline and [35S]-sulfate into collagen and proteoglycans, respectively, for the annulus cells and nucleus cells separately, and by determining whether this incorporation was reflected by changes in the levels of mRNA for aggrecan and Types I and II collagen.

RESULTS: Comparisons with atmospheric pressure yielded the following findings: 1) In the incorporation studies, the nucleus and annulus cells exhibited a differential response to a hydrostatic pressure of 1 MPa. Collagen and proteoglycan syntheses were stimulated in the nucleus cells and inhibited in the annulus cells. 2) There was no significant increase in cell proliferation, as measured by DNA content, at 1 MPa for either the annulus or nucleus cells. 3) The mRNA levels of collagen (Col 1A1 and Col 2A1) and aggrecan increased at 1 MPa in both the nucleus and annulus cells.

CONCLUSIONS: Hydrostatic pressure directly affects the synthesis of collagen and proteoglycan by the ***intervertebral*** disc***

cells

L33 ANSWER 12 OF 36 MEDLINE DUPLICATE

AN 1999259487 MEDLINE

DN 99259487

TI Phenotypic characteristics of rabbit ***intervertebral*** disc***

cells . Comparison with cartilage cells from the same animals.

AU Potraudeau S, Monteiro I, Aurat P, Blandinard O, Revel M, Cornol M T

CS Institut National de la Sante Et de la Recherche Medicale (INSERM) U30.

Hopital Necker-Enfants malades, Universite Rene Descartes, Paris, France.

SO SPINE. (1999 May 1) 24 (9) 837-44.

Journal code: UXK. ISSN: 0362-2436.

Y United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EN 199909

EW 19990901

AB STUDY DESIGN: ***intervertebral*** disc***

cells were

extracted from the surrounding matrix, and their metabolic activities and phenotypes were studied. OBJECTIVES: To compare the metabolic activities and phenotypes of cell populations extracted from the intervertebral discs of young rabbits with those of articular and growth plate chondrocytes from the same animals. SUMMARY OF BACKGROUND DATA: The phenotype of ***intervertebral*** disc*** has been poorly studied and still is debated. METHODS: The intervertebral discs as well as articular and vertebral growth plate cartilage of rabbits were digested enzymatically. The morphology of freshly isolated cells was examined. Their contents of collagen II and X mRNAs were determined by Northern blot analysis, and their sulfation activity by 35S-sulfate incorporation as chondrocytic markers. Cells were cultured at high density or low density and grown in primary culture. The stability of their phenotype was monitored by evaluating the collagen I and II mRNA ratio. The proteoglycans newly synthesized by the cells also were quantified, and their elution profile analyzed on Sepharose 2B columns.

RESULTS: The annulus fibrosus cells were morphologically undistinguishable from articular chondrocytes. The nucleus pulposus contained mainly large vacuolated cells and a few smaller cells. All freshly extracted cells expressed different levels of collagen II mRNA. Annulus fibrosus and nucleus pulposus cells contained, respectively, 22% and 8% of collagen II mRNA compared with that found in articular or growth plate chondrocytes from the same animal. Only growth plate chondrocytes expressed collagen X.

When annulus fibrosus cells were incubated for 48 hours at high density, they had collagen II mRNA contents similar to those of articular growth plate chondrocytes, but synthesized five to six times fewer sulfated proteoglycans. When seeded at low density, annulus fibrosus cells divided more slowly than articular chondrocytes and incorporated four times fewer 35S-sulfate into proteoglycans. Their collagen II mRNA content was 2.75-fold lower than that of chondrocytes, and the procollagen alpha 1(I)alpha 1(I) mRNA ratio was 3.1 for annulus fibrosus cells and 7 for chondrocytes. No collagen X mRNA was detected. When incubated for 48 hours

at high density, the nucleus pulposus giant cells had four times less collagen II mRNA content than cartilage cells but synthesized the same amounts of sulfated proteoglycans. They did not divide during 21 days in culture and still contained collagen II mRNA but no collagen X mRNA.

CONCLUSIONS: Findings showed that ***intervertebral*** disc*** all express cartilage-specific matrix proteins with quantitative differences, depending on their anatomic situation. It is suggested that annulus fibrosus cells are chondrocytic cells at a different stage of differentiation than articular and growth plate chondrocytes.

The phenotype of nucleus pulposus cells still is unclear. They could be chondrocytic or notochordal. A definitive answer to this important question requires differentiating markers of notochordal cells.

L33 ANSWER 13 OF 36 MEDLINE DUPLICATE

AN 1999229267 MEDLINE

DN 99229267

TI The influence of Mairgel or growth factor reduced Mairgel on human ***intervertebral*** disc*** cell*** growth and proliferation.

AU Desai B J, Gruber H E, Hanley E N Jr

CS Department of Orthopedic Surgery, Carolinas Medical Center, Charlotte, NC, USA.

SO HISTOLOGY AND HISTOPATHOLOGY. (1999 Apr) 14 (2) 359-68.

Journal code: BEM. ISSN: 0213-3911.

CY Spain

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EW 19990901

AB Mairgel (reconstituted basement membrane extract) is a potent inducer of cell growth and differentiation in vitro. This study examined phenotypic variation and proliferative responses of human annular Mairgel ***intervertebral*** disc*** in vitro in age- and gender-matched control subjects and patients with degenerative disc disease were grown either on the surface of, or suspended within, either matrices. Disc cells grew well on top of both matrices with cells spontaneously forming cell projections. Cells grown within either matrix migrated within the gel to form colonies. Increased colony

formation within the matrices was seen with young control and patient cells (p < 0.05). Old and young control and patient cells showed increased proliferation within GFR-Matrigel compared to Matrigel. When grown on the matrix surface, young patient and control donor cells showed increased proliferation on GFR-Matrigel compared to Matrigel. Cellular proliferation was significantly greater inside a 3-dimensional environment than a two-dimensional surface monolayer environment. Disc cells had increased proliferation when grown in or on GFR-Matrigel compared to Matrigel. These studies serve as a baseline for subsequent investigations regarding effects of cytokines on disc cells and increase our knowledge of the influence of extracellular matrices on disc cell proliferation.

L33 ANSWER 14 OF 36 MEDLINE DUPLICATE
 8 AN 1999164907 MEDLINE
 DN 99164907
 T1 Cyclic mechanical stretch stress increases the growth rate and collagen synthesis of nucleus pulposus cells in vitro.
 AU Matsunoto T, Kawakami M, Kuribayashi K, Takeraka T, Tamaki T
 CS Department of Orthopedic Surgery, Wakayama Medical College, Japan.
 Email: wakayama-med.ac.jp
 SO SPINE. (1999 Feb 15) 24 (4) 315-9.
 Journal code: UXX. ISSN: 0362-2436.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 19990701
 EW 19990701
 AB STUDY DESIGN: A rabbit model designed to investigate the effects of applied cyclic tensile stress on the cell division rate and the collagen synthesis in the rabbit nucleus pulposus cells in vitro.
 OBJECTIVE: To evaluate the effects of mechanical stress on nucleus pulposus cells, thus adding to the understanding of the adaptation of the intervertebral disc to mechanical stress. SUMMARY OF BACKGROUND DATA: ***Intervertebral***
 disc ***cells*** in vivo are exposed to a multitude of physical forces during physical motion. Although it is known that in intervertebral disc disease, a common pathway of disc degeneration is mechanical stress on the nucleus pulposus or the annulus fibrosus or both,

the underlying mechanism has been less well defined. METHODS: Nucleus pulposus cells were isolated from 4-week-old Japanese white rabbits. These cells were subjected to the mechanical cyclic stretch stress using a computerized, pressure-operated instrument that physically deformed the cells. The DNA synthesis rate, collagen synthesis rate, and cell cycle progression were measured. RESULTS: Cyclic tensile stretch increased the DNA synthesis rate in nucleus pulposus cells and in the population of cells in the S phase of the cell cycle during 1 to 2 days of subjugation to stress. Cyclic tensile stretch also increased collagenous protein synthesis in nucleus pulposus cells during 1 to 4 days of stress. CONCLUSIONS: Mechanical stress on nucleus pulposus cells promotes the proliferation of cells and alters the properties of ***Intervertebral***
 disc ***cells***. This study may reflect the adaptation of the intervertebral disc to increased motion and stress.

L33 ANSWER 15 OF 36 MEDLINE DUPLICATE
 9 AN 1999237024 MEDLINE
 DN 99237024
 T1 Expression of alpha-smooth muscle actin in canine ***Intervertebral***
 disc ***cells*** in situ and in collagen-glycosaminoglycan matrices in vitro.
 AU Schneider T O, Mueller S M, Shortkroff S, Spector M
 CS Department of Orthopaedic Surgery, Brigham and Women's Hospital, Harvard Medical School, Boston 02115, USA.
 SO JOURNAL OF ORTHOPAEDIC RESEARCH. (1999 Mar) 17 (2) 192-9.
 Journal code: JIQ. ISSN: 0736-0266.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 19990704
 EW 19990704
 AB The objective of this study was to investigate the presence of a contractile actin isoform, alpha-smooth muscle actin, in annulus fibrosus cells in situ and in two and three-dimensional cultures. Annulus fibrosus cells were isolated from healthy adult dogs, serially passaged, and then injected into porous collagen-glycosaminoglycan copolymers consisting of either type-I or type-II collagen. Alpha-smooth muscle actin was

detected in the cells in tissue samples and in culture by immunohistochemistry. The number of cells and glycosaminoglycan content of the matrices were determined after 1, 7, and 14 days, and the diameters of the specimens were measured every 2 days. Although few annulus fibrosus cells in vivo displayed the presence of the alpha-smooth muscle actin isoform, most cells in two-dimensional culture demonstrated this phenotype. The contractile behavior of these cells was shown by the cell-mediated contraction of type-I collagen-glycosaminoglycan scaffolds after 8 days in culture. Glycosaminoglycan production was not significantly different in the seeded type-I matrices than in the unseeded matrices, whereas the seeded type-II matrices had a significant increase in glycosaminoglycan production between days 1 and 14 compared with the unseeded controls. This is the first report of both the expression of the contractile alpha-smooth muscle actin isoform in ***Intervertebral***
 disc ***cells*** and the ability of the cells to contract a collagen matrix. This finding could aid in better understanding the nature of cells in the annulus.

L33 ANSWER 16 OF 36 BIOSIS COPYRIGHT 2000 BIOSIS
 AN 1999152891 BIOSIS
 DN PREV199900152891
 T1 Co-localisation of a proteoglycan epitope and type X collagen by human ***Intervertebral***
 disc ***cells*** in vitro.
 AU Roberts, S. (1), Johnson, E., Garguilo, B., Catterson, B., Kwan, A.
 CS (1) Robert Jones Agnes Hunt Orthopaedic Hosp., Oswestry, Shropshire UK.
 SO Biochemical Society Transactions. (1999) Vol. 27, No. 1, pp. A42.
 Meeting Info: 667th Meeting of the Biochemical Society, Leicester, England, UK, September 21-22, 1998
 ISSN: 0300-5127
 DT Conference
 LA English

L33 ANSWER 17 OF 36 MEDLINE DUPLICATE
 10 AN 1999071915 MEDLINE
 DN 99071915
 T1 The effect of compressive force applied to the intervertebral disc in

vivo. A study of proteoglycans and collagen.
 AU Hutton W C, Tomlinson Y, Elmer W A, Garry T M, Tomlinson K, Whitesides T E
 CS Department of Orthopaedics, Emory University, Atlanta, Georgia.
 william_hutton@emory.org
 SO SPINE. (1998 Dec 1) 23 (23) 2524-37.
 Journal code: LXX. ISSN: 0362-2436.
 CY United States
 DT Journal Article. (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199904
 EW 19990404
 AB STUDY DESIGN: Coil springs were stretched and attached to produce a compressive force across the lumbar intervertebral discs of dogs for up to 27 weeks. OBJECTIVE: To test the hypothesis that a high compressive force applied over a period of time affects the production of proteoglycans and collagen by the ***intervertebral*** ***disc*** ***cells***
 SUMMARY OF BACKGROUND DATA: It is a commonly held belief that high forces applied to the intervertebral disc, and to joints in general, play a role in causing degeneration. METHODS: Pairs of stainless steel coil springs were stretched and attached to produce a compressive force across the lumbar intervertebral discs (L1-L2 and L3-L4) of 16 dogs. Dogs were killed between 13 and 27 weeks after the springs were attached. The discs (L1-L2 and L3-L4) were excised and assessed using immunohistochemical analyses and enzyme-linked immunosorbent assay. T13-L1 and L4-L5 were used as controls. RESULTS: The main result relates to a group effect in the six dogs assessed using enzyme-linked immunosorbent assay, that were generally at the highest values of force for the greatest number of weeks. For the nucleus, but not the annulus, Spearman rank correlations revealed a strong correlation between increases in force and force-weeks (force multiplied by number of weeks) and increases in collagen type I accompanied by decreases in proteoglycans, chondroitin sulfate, and collagen type II for both experimental discs (L1-L2 and L3-L4), as compared with corresponding values in the controls (T13-L1 and L4-L5). In other words, as either the force or the force-weeks increased, the

effect on the nucleus became greater. CONCLUSION: A high compressive force applied to the disc over a period of time initiates changes in proteoglycans and collagen.
 L33 ANSWER 18 OF 36 BIOSIS COPYRIGHT 2000 BIOSIS
 AN 1998-388538 BIOSIS
 DN PREV199800388538
 TI Characterization of cytoplasm-filled processes in cells of the intervertebral disc.
 AU Errington, R. J.; Pustjari, K.; White, I. R.; Roberts, S.; Urban, J.
 P. G. (1)
 CS (1) Univ. Lab. Physiol., Oxford Univ., Oxford UK
 SO Journal of Anatomy. (April, 1998) Vol. 192, No. 3, pp. 369-378.
 ISSN: 0021-8782.
 DT Article
 LA English
 AB We examined cells from the nucleus pulposus and annulus fibrosus of adult bovine intervertebral discs, using confocal laser scanning microscopy on living unfixed tissue. These cells were visualised using chloromethyl fluorescein diacetate, a membrane-impermeant fluorescent dye. The organisation of cells from the outer annulus was also determined using confocal microscopy after fixation and staining the actin-filaments with FITC-phalloidin. We found that cellular processes were a dominant feature of cells from all regions of the disc including the cells of the nucleus pulposus and inner annulus. These processes were also visible in histological sections of disc examined both at the light and electron microscope level, even though cells from the nucleus and inner annulus appeared chondrocyte-like, being rounded and enclosed in a capsule. The function of these processes is at present unknown. We suggest that they may serve to sense mechanical strain.
 L33 ANSWER 19 OF 36 BIOSIS COPYRIGHT 2000 BIOSIS
 AN 1998-199979 BIOSIS
 DN PREV199800199979
 TI ***intervertebral*** ***disc*** ***cells*** can express monocyte-macrophage specific antigens.
 AU Julia, S. F. (1); Rand, N.; Floman, Y.; Spengler, D. N.
 CS (1) Vanderbilt Univ. Med. Center, Nashville, TN USA
 SO FASEB Journal. (March 17, 1998) Vol. 12, No. 4, pp. A276
 Meeting Info: Annual Meeting of the Professional Research Scientists on Experimental Biology 98, Part 1 San Francisco, California, USA

April
 18-22, 1998 Federation of American Societies for Experimental Biology
 ISSN: 0892-6638.
 DT Conference
 LA English
 L33 ANSWER 20 OF 36 MEDLINE
 II
 AN 1998368977 MEDLINE
 DN 98368977
 TI Variation with age in the pattern of type X collagen expression in normal and scoliotic human intervertebral discs.
 AU Aigner T, Gress-otter K R, Fairbank J C, von der Mark K, Urban J P
 CS Department of Pathology, Friedrich-Alexander-University of Erlangen, Nurnberg, FRG.
 SO CALCIFIED TISSUE INTERNATIONAL. (1998 Sep) 63 (3) 263-8.
 Journal code: CGH. ISSN: 0171-967X.
 CY United States
 DT Journal Article. (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199901
 EW 19990104
 AB The distribution and expression of type X collagen, a calcium-binding collagen, which is a marker of hypertrophic chondrocytes and thought to be involved in cartilage calcification, was examined in situ in nondegenerate (grade I or II) human discs taken at autopsy over a wide age range (fetal->80 years) and also in scoliotic discs removed at surgery. In the fetal vertebral column, type X collagen was strongly expressed in the hypertrophic chondrocytes of the endplate, but was not seen in other areas. In the cartilaginous endplate of adults, it was found over the whole age range examined, with intensity increasing with age. In the disc matrix itself, type X collagen was demonstrated around individual cells from all individuals older than 50 years, but not in any fetal or autopsy disc from individuals younger than 40 years. In scoliotic discs, however, focal type X collagen expression was seen in 3/8 patients younger than 40 years including one 12-year-old. No type X collagen was found in the outer annulus in any autopsy or scoliotic disc, supporting the idea that cells of the outer annulus are phenotypically distinct from cells of the

inner annulus and the nucleus. Our results demonstrate for the first time that type X collagen is a possible gene product of the ***intervertebral*** ***disc*** and a potential biochemical component of the disc matrix. They indicate that with age or in scoliosis, some cells from the inner annulus or nucleus of the disc differentiate to the chondrocyte phenotype. This might be the initiating event for the abnormal calcification described in aged and scoliotic discs in other studies.

L33 ANSWER 21 OF 36 MEDLINE DUPLICATE

12 AN 1998093692 MEDLINE

DN 98093692

TI Metabolism of the extracellular matrix formed by ***intervertebral***

disc ***cells*** cultured in alginate.

AU Chiba K, Andersson G B, Masuda K, Thonar E J

CS Department of Orthopedic Surgery, Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois, USA

NC AG-04736 (NIA)

2-P50-AR 39239 (NIAMS)

SO SPINE. (1997 Dec 15) 22 (24) 2885-93.

Journal code: UXX. ISSN: 0362-2436.

CY United States

DT Journal, Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199804

EW 19980402

AB STUDY DESIGN: Cells from normal rabbit nucleus pulposus (NP) and annulus

fibrosus (AF) were cultured in alginate beads for as long as 14 days to allow them to reform a matrix made up of two compartments: the cell-associated matrix (CM) and further removed matrix (FRM). At

different

time points, the CM and FRM made by each cell population were analyzed

using histologic, biochemical, and immunologic assays.

OBJECTIVES: To study the metabolism of normal rabbit NP and AF cells in alginate

by characterizing the CM and FRM formed by each cell population,

and to

identify metabolic properties that may shed light on mechanisms at

play in disc degeneration. SUMMARY OF BACKGROUND DATA: Little is known about the

metabolism of ***intervertebral*** ***disc***

cells in

part because of the lack of microculture systems appropriate for the study of these cells in vitro. In recent studies from our laboratories, it was suggested that articular chondrocytes cultured in alginate beads remain phenotypically stable and reform a matrix similar to the one they populate in vivo. This culture system appears ideally suited for the study of intervertebral cells available only in limited numbers. METHODS:

Rabbit NP and AF cells released from the matrix by sequential enzyme digestion were encapsulated in alginate beads (20,000 cells/bead) and cultured for

as long as 14 days. At selected time points, beads were solubilized with

calcium chelating agents, and the CM and FRM were isolated. The rate of

35S-sulfate incorporation into proteoglycans, and the contents of various

extracellular matrix molecules (total sulfated proteoglycans, antigenic

keratan sulfate, hyaluronan, collagen, and pyridinium crosslinks) were

measured. RESULTS: Both NP and AF cells remained phenotypically stable in

the alginate gel throughout the culture period and reestablished a matrix

composed of CM and FRM compartments. The two cell populations exhibited

numerous differences in their metabolic activities in vitro. Nucleus pulposus cells synthesized fewer proteoglycan and collagen

molecules and were less effective in incorporating these into the CM than AF

cells. CONCLUSIONS: ***Intervertebral*** ***disc***

cells especially NP cells, are extremely sluggish in reforming a CM, a

protective shell rich in proteoglycans and collagen molecules. This may

help explain why damage to the NP often is accompanied by progressive

degeneration of the disc in vivo.

L33 ANSWER 22 OF 36 MEDLINE DUPLICATE

13 AN 97304193 MEDLINE

DN 97304193

TI Effects of hydrostatic pressure on matrix synthesis and matrix metalloproteinase production in the human lumbar intervertebral

disc.

AU Handa T, Ishihara H, Oshima H, Osada R, Tsuji H, Osada K

CS Department of Orthopaedic Surgery, Faculty of Medicine, Toyama Medical and

Pharmaceutical University, Japan

SO SPINE. (1997 May 15) 22 (10) 1085-91.

Journal code: UXX. ISSN: 0362-2436

CY United States

DT Journal, Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199710

AB STUDY DESIGN: This study is a unique in vitro study on the effects of

hydrostatic pressure on human intervertebral disc metabolism.

OBJECTIVE:

To investigate the effects of hydrostatic pressure on matrix

synthesis and matrix metalloproteinase production in the human lumbar

intervertebral

disc. SUMMARY OF BACKGROUND DATA: Mechanical stress and hydrostatic

pressures influence proteoglycan and protein synthesis rates in

bovine articular cartilage and coccygeal discs. However, the mechanism of

matrix

synthesis regulation of the intervertebral disc under mechanical

stress

has not been elucidated. METHODS: Twenty-eight human lumbar

intervertebral

discs obtained from surgery and from cadavers at autopsy were

used. Each

tissue fraction was charged with medium in a plastic syringe and

placed in a water-filled hydrostatic pressure-control vessel. The hydrostatic

pressures applied were 1 (control), 3, and 30 atm (1 atm =

atmospheres) for

2 hours. The proteoglycan and protein synthesis rates were

determined by

radioisotope incorporation. The production of matrix

metalloproteinase-3

and tissue inhibitor of metalloproteinases-1 were measured by a

one-step

enzyme immunoassay method using monoclonal antibodies.

RESULTS: Three atm

pressure stimulated proteoglycan synthesis rates in the nucleus

pulposus

and inner annulus (n = 14 in each tissue). Compared with the control

group,

30 atm pressure significantly inhibited proteoglycan synthesis in the

inner annulus (P = 0.011) in the nucleus pulposus, matrix

metalloproteinase-3 production was stimulated at a pressure of 30

atm relative to 3 atm (P = 0.014, n = 16 in each tissue). The highest

tissue

inhibitor of metalloproteinases-1 production showed highest values

at 3

atm pressure in the inner annulus (n = 16 in each tissue)

CONCLUSION: The

results suggest that hydrostatic pressure influences

intervertebral ***disc*** ***cell*** metabolism.

A

physiologic level of hydrostatic pressure (3 atm) may act as an

anabolic

factor for stimulation of proteoglycan synthesis and tissue inhibitor of metalloproteinases-1 production. This may be essential for maintaining the matrix of the disc. If the pressure was 30 atm or more or 1 atm or less, a catabolic effect will be predominant, with reduction of proteoglycan synthesis rate and increase of matrix metalloproteinase-3 production.

Abnormal hydrostatic pressure, therefore, may accelerate disc degeneration.

L33 ANSWER 23 OF 36 MEDLINE DUPLICATE
14
AN 1998018417 MEDLINE
DN 98018417
TI Type-II collagen gene expression is transiently upregulated in experimentally induced degeneration of rabbit intervertebral disc.
AU Takashi H, Nemoto O, Shioa M, Kikuchi T, Yamada H, Yamagishi M, Yabe Y
CS Department of Orthopaedic Surgery, National Defense Medical College, Keio
University School of Medicine, Tokyo, Japan
SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1997 Jul) 15 (4) 528-38.
CY United States
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 19980104
EW 19980104
AB To clarify phenotypic alterations of ***intervertebral***
disc
cells during the repair process, we cloned partial type-II collagen cDNA from rabbits and analyzed the level of expression of type-II collagen mRNA in disc degeneration. An animal model was created by surgical denudation of rabbit intervertebral discs through an extrapertoneal approach. Eight animals each from an experimental and a control group were killed at 2, 4, 8, or 16 weeks postoperatively, and the disc samples were used for this study. Round chondrocyte-like cells filled the herniated space showed intense signal of type-II collagen mRNA and significant pericellular immunostaining of type-II collagen but no clear staining of type-I collagen. Northern blot analysis revealed the expression of type-II collagen mRNA of the repair disc cells was transiently increased at 4 weeks postoperatively. The cells were able to change their morphology in response to mechanical stimulation by

surgical denudation and to induce a significant increase in the gene expression of type-II collagen at an early phase of disc degeneration. The present results indicate the transient enhancement of repair activity in the degenerative process of injured fibrocartilage.

L33 ANSWER 24 OF 36 MEDLINE DUPLICATE
15
AN 97428270 MEDLINE
DN 97428270
TI Human ***intervertebral*** ***disc*** ***cells*** from the annulus: three-dimensional culture in agarose or alginate and responsiveness to TGF-beta1.
AU Gruber H E, Fisher E C Jr, Deas B, Sacks A A, Hoelscher G, Hanley E N Jr
CS Department of Orthopaedic Surgery, Carolinas Medical Center, Charlotte, North Carolina 28232, USA. hgruber@carolinas.org
SO EXPERIMENTAL CELL RESEARCH, (1997 Aug 25) 235 (1) 13-21.
Jurnal code: EPB, ISSN: 0014-4827.
CY United States
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals; Cancer Journals
EM 19971201
EW 19971201
AB Cell culture procedures were developed for use with surgical and normal control specimens of the annulus of the human ***intervertebral***
disc
cells were established in monolayer explant culture and seeded into three-dimensional growth environments of alginate or agarose, under these growth conditions cells assumed a rounded phenotype and formed colonies. A novel method of layering suspensions of cells onto cell well inserts proved technically much easier than the microbead culture method. Immunohistochemistry was utilized to demonstrate in vitro production of the following extracellular matrix components: types I, II, III, and VI collagen, 4-S-chondroitin sulfate, and keratan sulfate. Young and old age- and gender-matched cells grown in the presence of TGF-beta1 showed significant enhancement of proliferation after 4 days of exposure to TGF-beta with a lessened mitogenic response present after 10 days. Molecular studies of proteoglycan gene expression showed that at 4 days young normal cells had increased biglycan, but not decorin, message

levels. Decorin expression was unchanged at Day 4 and decreased or shut off by Day 10. Results support the use of three-dimensional culture systems for in vitro evaluation of human disc cell function and expand our understanding of the in vitro behavior of these cells.

L33 ANSWER 25 OF 36 MEDLINE DUPLICATE
16
AN 96233205 MEDLINE
DN 96233205
TI The effect of substance P on proliferation and proteoglycan deposition of cells derived from rabbit intervertebral disc.
AU Ashton I K, Eisenstein S M
CS Centre for Spinal Studies, Robert Jones and Agnes Hunt Orthopaedic Hospital, Oswestry, United Kingdom.
SO SPINE, (1996 Feb 15) 21 (4) 421-6.
Jurnal code: UXX, ISSN: 0362-2436.
CY United States
DT Journal Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199610
AB STUDY DESIGN. This study is an in vitro investigation of the effects of substance P on ***intervertebral*** ***disc*** ***cell*** metabolism. OBJECTIVES. To determine whether the neuropeptide, substance P, affects cells isolated from the intervertebral disc. SUMMARY OF THE BACKGROUND DATA. Nerve fibers containing substance P are present in the annulus fibrosus and may be released from the nerve terminals as in other tissues. Substance P is mitogenic for a variety of immune and connective tissue cells, and a fragment of the peptide affects the metabolism of articular chondrocytes. METHODS. Cells were isolated enzymically from the annulus fibrosus of intervertebral disc of 8-week-old rabbits. The effects of substance P and the C-terminal pentapeptide fragment SP7-11 on cell proliferation and proteoglycan deposition were determined by crystal violet and Alcian blue staining, respectively. RESULTS. Substance P ((10)-(11)-(10)-7 mol/l) had a small stimulatory effect on disc cell proliferation. Proteoglycan deposition in the cell layer increased concomitantly. A greater proliferative effect was observed with substance P fragment 7-11 or with the addition of the neural endopeptidase inhibitor, phosphoramidon. CONCLUSIONS. Substance P has small mitogenic effects on rabbit ***intervertebral*** ***disc***

cells
in vitro. Further investigation is required to establish whether this might have biologic relevance in relation to the maintenance or repair of the intervertebral disc.

L33 ANSWER 26 OF 36 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1997:96748 BIOSIS
DN PREV19979393931

TI Matrigel (MGC) enhances cell proliferation, but not CFU formation in human

intervetrenal **disc*** **cells*** (DC)

AU Desai, B. J.; Gruber, H. E.; Hanley, E. N., Jr.

CS Dep. Orthop. Surg., Carolinas Med. Cent., Charlotte, NC 28232 USA

SO Molecular Biology of the Cell, (1996) Vol. 7, No. SUPPL., pp. 420A

Meeting Info.: Annual Meeting of the 6th International Congress on Cell

Biology and the 36th American Society for Cell Biology, San Francisco, California, USA December 7-11, 1996

ISSN: 1059-1524

DT Conference; Abstract; Conference

LA English

L33 ANSWER 27 OF 36 MEDLINE DUPLICATE

AN 96093339 MEDLINE

DN 96093339

TI Distribution of the basic fibroblast growth factor and its receptor gene

expression in normal and degenerated rat intervertebral discs

AU Niegami T.; Yonemitsu K.; Miyamoto S.; Tohyama M.; Ono K.

CS Department of Orthopaedic Surgery, Osaka University Medical School, Japan.

SO SPINE, (1995 Sep 15) 20 (18) 1972-8.

Journal code: UYK. ISSN: 0362-2436.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199605

AB STUDY DESIGN: Using a rat spondylosis model, the distributions of cells

expressing the basic fibroblast growth factor and its receptor were

investigated in normal and degenerated intervertebral discs.

Cell-proliferating activity in degenerated discs was also assessed.

OBJECTIVES: This study was conducted to determine whether

basic fibroblast

growth factor is related to intervertebral disc degeneration.

SUMMARY OF

BACKGROUND AND DATA: Basic fibroblast growth factor stimulates

proliferation

and matrix synthesis of cultured ***intervetrenal***

cells. METHODS: Immunohistochemistry and in situ

hybridization histochemistry were conducted to detect cells with basic fibroblast growth factor-like immunoreactivity and fibroblast growth factor receptor messenger RNA, respectively. Cell-proliferating activity was evaluated by

AgNOR staining. RESULTS: In degenerated discs, round chondrocytes with basic fibroblast growth factor-like immunoreactivity and fibroblast growth factor receptor messenger RNA are scattered instead of spindle-shaped

cells in the normal annulus (normal annular cells), which are devoid of basic fibroblast growth factor-like immunoreactivity and fibroblast growth factor receptor messenger RNA. The proliferating activity of these chondrocytes is suggested to exceed that of normal annular cells.

CONCLUSION: Basic fibroblast growth factor is suggested to promote proliferation of chondrocytes in degenerated discs in an autocrine or paracrine manner. Basic fibroblast growth factor may be related to intervertebral disc degeneration as a proliferation-stimulating factor of chondrocytes that replace normal annular cells during disc degeneration.

L33 ANSWER 28 OF 36 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 9530637 EMBASE

DN 199530637

TI IL-1 beta induces nitric oxide production in ***intervetrenal***

disc **cells*** in vitro.

AU Ashton L.N.; Risley G.L.; Eisenstein S.M.

CS Centre for Spinal Studies, R James A Hunt Orthopaedic Hospital, Oswestry,

Salop SY10 7AG, United Kingdom

SO Journal of Orthopaedic Rheumatology, (1995) 8/3 (151-154)

ISSN: 0951-9580 CODEN: JORHE3

CY United Kingdom

DT Journal; Article

FS 029 Clinical Biochemistry

031 Arthritis and Rheumatism

LA English

SL English

AB Nitric oxide (NO) synthesis is induced in a variety of cells,

including articular chondrocytes, by the inflammatory mediator interleukin

1 beta (IL 1 beta) and may have a role in the activation of the matrix metalloproteinases which regulate the biosynthesis of cartilaginous

matrix. The factors which control the metabolism of the intervertebral disc, the extracellular matrix of which also comprises collagens and proteoglycans, are not well understood and may also involve NO.

Cells

isolated from the annulus fibrosus of rabbit intervertebral disc and maintained in culture synthesizes low basal levels of NO, nitric (< 0.5 nmole per 105 cells per 24 h). Addition of IL 1 beta, (10-1000 U ml⁻¹) promoted a dose-dependent increase in NO to > 4 nmol per

105 cells per 24 h beginning after a delay of approximately 8 h, suggesting a de novo synthesis of NO synthase. This increase was inhibited by 0.2 mM N(G)-monomethyl-L-arginine, L-NAME, the competitive inhibitor of NO synthesis from arginine. Dexamethasone is a potent inhibitor of NO

synthesis in macrophages, however, 1 muM dexamethasone did not inhibit NO synthesis in rabbit ***intervetrenal*** **disc***

cells. Addition of 10-1000 U ml⁻¹ IL 1 beta, resulted in a depletion of proteoglycan from the disc cell layer in 48 h. Although

this was prevented by dexamethasone, it was reduced but not prevented by L-NAME

at a concentration which inhibited NO production. This suggests that the IL 1 beta-induced decrease in synthesis of the extracellular matrix of intervertebral disc is mediated only in part by NO.

L33 ANSWER 29 OF 36 MEDLINE DUPLICATE

AN 92364712 MEDLINE

DN 92364712

TI Initial characterization of the metabolism of ***intervetrenal***

disc **cells*** encapsulated in microspheres.

AU Maldonado B. A.; Osguma T. R. Jr.

CS Department of Orthopaedic Surgery, University of Minnesota, Minneapolis

55455.

NC AR39255 (NIAMS)

AR32145 (NIAMS)

AR07555 (NIAMS)

SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1992 Sep) 10

(5) 677-90

Journal code: JIQ. ISSN: 0736-0266.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199211

AB Adult canine ***intervetrenal*** **disc***

cells were isolated with a sequential digestion of pronase and bacterial

collagenase.

The nonchondrocyte-stripped nucleus pulposus exhibits two

populations of cells: large notochordal cells and smaller chondrocyte-like cells

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The cells from the transition zone and annulus fibrosus are uniform in size, ranging from 17 to 21 microns. The isolated cells were encapsulated in alginate beads and cultured in Ham's F-12 medium containing 5% heat-inactivated fetal bovine serum. Alginate bead formation requires calcium ions and can be reversed with a suitable chelator, thus releasing viable cells. We observed that 58% of the newly synthesized proteoglycans formed large-molecular-weight aggregates with hyaluronic acid. The proteoglycans contained low amounts of keratan sulfate (KS) (less than 5% of the total glycosaminoglycans synthesized). The chondroitin sulfates (CS) consisted of 51-67% as 6-O-sulfate and 29-39% as 4-O-sulfate, with the remainder (4-10%) present as 4,6-sulfate for all three zones of the disc. The majority of cells synthesized significant amounts of matrix as evidenced by Alcian Blue staining. By immunohistochemical analysis, the matrix contained chondroitin 6-sulfate as demonstrated by monoclonal antibodies to the unsaturated disaccharides remaining on the proteoglycan core after chondroitinase ABC digestion. Keratan sulfate was also present in the majority of the matrices around cells. These results emphasize the similarity of the newly synthesized proteoglycans secreted by cells grown in alginate beads to those synthesized by the neonate disc. These experiments also demonstrate the usefulness of this method as a microculture technique for disc cells.

L33 ANSWER 30 OF 36 MEDLINE DUPLICATE
19
AN 91259345 MEDLINE
DN 91259345
TI Identification of human intervertebral disc stromelysin and its involvement in matrix degradation.
AU Liu J; Roughley P J; Mior J S
CS Joint Diseases Laboratory, Shriners Hospital for Crippled Children.
Montreal, Quebec, Canada.
SO JOURNAL OF ORTHOPAEDIC RESEARCH. (1991 Jul) 9 (4) 568-75.
Journal code: JIQ. ISSN: 0736-0266
CY United States
DT Journal Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals

EM4 199109
AB Human intervertebral disc when maintained in organ culture released a latent casein-degrading metalloproteinase into the medium in a manner analogous to cultures of human cartilage. This enzyme was demonstrated to be immunologically identical to prostromelysin. It was also found that the amount of procollagenase secreted by both cartilage and disc cells was considerably less than that of prostromelysin. Tissue extraction confirmed that the low level of procollagenase observed was not due to retention of the enzyme within the tissue. Human intervertebral disc link proteins were found to possess the same N-termini as those of their counterparts in human articular cartilage, where it appears that stromelysin is responsible for generating molecular heterogeneity. These results suggest that ***intervertebral*** **disc*** **cells*** are capable of secreting prostromelysin, which can become activated within the extracellular matrix and hence contribute to the age-related and degenerative changes in the disc.

L33 ANSWER 31 OF 36 CAPLUS COPYRIGHT 2000 ACS
AN 1990624295 CAPLUS
DN 113224295
TI Morphological and biochemical studies on cultured ***intervertebral*** **disc*** **cells***. I. With special reference to the effect of chymopapain
AU Yamazaki, Masashi; Moriya, Hideshige; Kitahara, Hiroshi; Watanabe, Tadamu; Tsuchida, Toyomitsu
CS Sch. Med., Chiba Univ., Chiba, 280, Japan
SO Chiba Igaku Zasshi (1989), 65(6), 367-72
CODEN: CIZAAZ; ISSN: 0303-5476
DT Journal
LA Japanese
AB Mechanisms of the intervertebral disk nucleus pulposus regeneration after chemonucleolysis with chymopapain were studied in cultured annulus fibrosus (AF) cells and nucleus pulposus (NP) cells derived from rabbit disk. The AF cells consisted mainly of chondrocytes with high cell growth rates and matrix prodn. activity, while most of the NP cells were notochordal cells. Chymopapain inhibited sulfated glycosaminoglycan synthesis in AF and NP cells, but the inhibition was reversible in AF.

cells. AF cells may play a major role in the nucleus pulposus regeneration after chemonucleolysis.

L33 ANSWER 32 OF 36 MEDLINE DUPLICATE
20
AN 89084690 MEDLINE
DN 89084690
TI The role of interleukin-1 on proteoglycan metabolism of rabbit annulus fibrosus cells cultured in vitro.
AU Shimizu M; Kikuchi T; Yamagishi M; Shimomura Y
CS Department of Orthopaedic Surgery, National Defense Medical College.
Satama-ken, Japan.
SO SPINE. (1988 Nov) 13 (11) 1284-90.
Journal code: UXK. ISSN: 0362-2436.
CY United States
DT Journal Article. (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 198904
AB The effects of human recombinant interleukin-1 alpha (IL-1 alpha) on proteoglycan (PG) metabolism of rabbit intervertebral disc were investigated morphologically and biochemically using rabbit annulus fibrosus (AF) cells in culture. AF cells could maintain their differentiated phenotype well in our primary culturing condition. In this situation, IL-1 alpha stimulated the cells and induced marked increase of PG release. Dose dependency of IL-1 alpha on PG release was seen in the concentration range between 5-50 U/ml. Caseolytic activity produced and secreted into the medium by AF cells was assayed and it was found that IL-1 alpha enhanced the enzyme activities in the medium. The IL-1 alpha on PG and DNA synthesis were also studied. Slight depression was observed in PG synthesis but there was no effect on DNA synthesis.
These data suggest that IL-1 alpha may play an important role in PG metabolism of ***intervertebral*** **disc*** **cells*** especially in the catabolic pathway of PG.

L33 ANSWER 33 OF 36 MEDLINE DUPLICATE
21
AN 87206469 MEDLINE
DN 87206469
TI Postmortem changes in ultrastructures of the mouse intervertebral disc.
AU Higuchi M; Abe K
SO SPINE. (1987 Jan-Feb) 12 (1) 48-52.
Journal code: UXK. ISSN: 0362-2436

CY United States
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM1 198708
 AB To elucidate the effects of nutrition and oxygen deficiencies on the
 intervetrenal ***disc***, ***cell*** components
 of mouse
 intervertebral discs and their postmortem changes were observed by
 electron microscopy. The annulus fibrosus could be divided into an
 inner
 and outer region. The main cell components of the annulus fibrosus
 were
 fibroblast-like cells in the outer region and chondrocytes in the
 inner
 region. The nucleus pulposus consisted of massively packed
 notochordal
 cells. The cartilage plates could also be divided into two zones:
 articular cartilage and growth cartilage containing chondrocytes.
 Postmortem degenerative changes proceeded from the peripheral to
 the
 central parts of the intervertebral disc, ie, showing degeneration of
 first the fibroblast-like cells, next the chondrocytes, and finally, the
 notochordal cells. The findings suggest that cells situated at the
 periphery predominantly depend on aerobic metabolism, whereas
 the cells
 situated more centrally depend on anaerobic metabolism.
 Furthermore,
 postmortem changes of the nucleus pulposus were similar to
 age-related
 changes. The age-related changes or degeneration in the
 intervertebral
 disc appear to be related to deficiencies of nutrition or oxygen
 caused by
 changes in structures of the disc and the surrounding tissues.

L33 ANSWER 34 OF 36 MEDLINE DUPLICATE
 22
 AN 83238944 MEDLINE
 DN 82238944
 TT Expression of gamma-glutamyl transpeptidase activity in the
 developing
 mouse tooth, intervertebral disc, and hair follicle.
 AU Richards W J, Astup E G
 NC CA-22484 (NCI)
 CA-07175 (NCI)
 CA-17334 (NCI)
 +
 SO CANCER RESEARCH (1982 Oct) 42 (10) 4143-52.
 Journal code: CNF. ISSN: 0008-5472.
 CY United States
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM1 198212
 AB Expression of gamma-glutamyl transpeptidase (GGT) in the

developing mouse
 tooth, intervertebral disc, and hair follicle was investigated in terms
 of
 its localization during ontogenic stages and its association or lack of
 association with cell proliferation (labeled nuclei after
 [3H]thymidine
 injection or metaphase-arrested cells after colchicine injection).
 The
 data demonstrate that (a) GGT expression followed a program of
 activity
 and localization changes that correlated with the progressive
 emergence of
 developmental stages and (b) GGT activity in developing tissues
 derived
 either from epithelium (enamel-producing cells and hair follicle
 cells) or
 from mesenchyme (***intervetrenal*** ***disc***
 cells)
 was localized only in mitotically quiescent cellular layers or regions
 associated with the production of specialized tissue products;
 however,
 not all postmitotic regions expressed GGT activity. Although
 further
 research is needed to clarify the role of GGT in normal and
 neoplastic
 tissues, we conclude that increasing evidence from this and other
 laboratories implicates GGT as a marker of cell differentiation, cell
 aging, and/or reduced cell proliferation.

L33 ANSWER 35 OF 36 MEDLINE DUPLICATE
 23
 AN 83044820 MEDLINE
 DN 83044820
 TT Carbohydrate metabolism and concentration profiles of solutes in
 the
 canine lumbar intervertebral disc.
 AU Hohn S, Selsam G, Nathenson A
 SO ACTA PHYSIOLOGICA SCANDINAVICA. (1982 May) 115
 (1) 147-56.
 Journal code: 114. ISSN: 0001-6772.
 CY Sweden
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM1 198302
 AB Utilization of glucose and oxygen by the cells as well as
 concentration
 profiles of solutes were studied in the canine
 intervetrenal
 disc, ***cell*** metabolism in this avascular tissue,
 being
 predominantly anaerobic, was found to be dependent on oxygen
 tension (this
 being especially pronounced in the region of 0.13-0.1 kPa (1-3
 mmHg) A
 high production rate of lactic acid was found in the nucleus
 pulposus.

whereas towards the periphery of the annulus fibrosus this rate
 gradually
 decreased. In the centrally located areas of the disc tissue, far away
 from the blood circulation, the highest concentrations of lactic acid
 were
 found. For the normal disc the energy demands seem to be met as
 even small
 amounts of oxygen account for a large energy source, whereas the
 cellular
 requirements are balanced up predominantly by glucose. In regions
 with
 extremely low oxygen tensions large amounts of glucose are
 consumed, but
 an additional potential energy pool of glycogen seems to be
 available.

L33 ANSWER 36 OF 36 MEDLINE DUPLICATE
 24
 AN 78117080 MEDLINE
 DN 78117080
 TT Staining of glycosaminoglycans in ***intervetrenal***
 disc
 cells
 AU Butler W F, Pouey I
 SO RESEARCH IN VETERINARY SCIENCE. (1977 Nov) 23 (3)
 351-5.
 Journal code: R7D. ISSN: 0034-5288.
 CY ENGLAND: United Kingdom
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM1 197806
 AB Disc material from horse, ox, sheep, pig, dog and cat was stained
 by the
 Alcian-blue-critical electrolyte concentration technique and with
 the
 standard and two-step periodic acid Schiff methods. The effects of
 pretreatment with hyaluronidase and with chondroitinase was also
 evaluated. There appears to be a small increase in total cellular
 glycosaminoglycan content with age in all species; cellular material
 of
 high molecular weight however only increases in aged animals. The
 degree
 of sulphation of cellular glycosaminoglycans does not vary with age
 or
 with position in the disc.

=> s intervertebral disc cell# and autologous/ab:bi
 VAB IS NOT A VALID FIELD CODE
 3 FILES SEARCHED...
 L34 0 INTERVERTEBRAL DISC CELL # AND
 AUTOLOGOUS/AB:BI
 => s intervertebral disc and autologous/ab:bi

AB IS NOT A VALID FIELD CODE
L35 40 INTERVERTEBRAL DISC AND
AUTOLOGOUS/AB/BI

=> dup rem L35

PROCESSING COMPLETED FOR L35

L36 24 DUP REM L35 (16 DUPLICATES REMOVED)

=> d 1-bib ab

YOU HAVE REQUESTED DATA FROM 24 ANSWERS -
CONTINUE? Y(N)/y

L36 ANSWER 1 OF 24 MEDLINE DUPLICATE

1 AN 2000232031 MEDLINE

DN 20232031

TI The effect of age on inflammatory responses and nerve root
injuries after

lumbar disc herniation: an experimental study in a canine model.

AU Hasegawa T; An H S; Inafusa A; Mikiawa Y; Watanabe R

CS Department of Orthopedic Surgery, Kawasaki Medical School,
Okayama.

Japan. hasegawa@med.kawasaki.ac.jp

SO SPINE. (2000 Apr 15) 25 (8):937-40.

Journal code: UXX. ISSN: 0362-2436

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 200008

EW 20000804

AB STUDY DESIGN: An experimental investigation on the effect

of age on pathologic events surrounding the herniated disc and at the adjacent

nerve root. OBJECTIVES: To investigate the role of age on the

inflammatory responses and nerve root damage surrounding a sequestered lumbar

disc fragment using a dog model. SUMMARY OF BACKGROUND

DATA: Lumbar disc herniation is manifested in patients by variable clinical findings.

natural history, and resorption phenomena in which the variability

is particularly noted among patients with different ages. There are no

previous reports on the effect of age on pathologic events induced

by the herniated disc. METHODS: Six beagle dogs, including two animals

of each age group of 6, 12, and 24 months (human equivalent ages of 10,

15, and 24 years), were used in this study. The dogs underwent L4-L5, L5-L6,

and L6-L7 laminotomy and discectomy under general anesthesia. An

autologous **intervertebral*** **disc*** from
the tail was divided into annulus fibrosus and nucleus pulposus fragments.

The annulus fibrosus and nucleus pulposus fragments were placed in the
anterolateral epidural space of L5-L6 and L6-L7, respectively. The
L4-L5 discectomy site served as a control. Dogs were killed at 12 weeks
after surgery. The lumbar spine was removed en bloc, and histologic
sections were prepared consecutively and examined. RESULTS: In the
nucleus pulposus group at L6-L7, neovascularity, and intensive infiltration of
lymphocytes, macrophages, and fibroblasts were observed surrounding the
nucleus pulposus fragment in the 24-month-old group only. Degenerative
changes of the nerve root fibers were observed in the 24-month-old group only.

In the control and annulus fibrosus groups at L4-L5 and L5-L6, there were
no marked inflammatory reactions in all age groups. The nerve root
fibers around the annulus fibrosus were normal in all age groups.

CONCLUSIONS: There is an effect of age on the inflammatory response and nerve
root injury caused by the herniated disc. The apparent neuroprotective
mechanism in the young animal, and the apparent inflammatory and
resorption changes of the nucleus pulposus fragment in the older
animal are quite intriguing.

L36 ANSWER 2 OF 24 MEDLINE DUPLICATE
2 AN 1999265186 MEDLINE
DN 99265186
TI Effects of basic fibroblast growth factor on spontaneous resorption
of herniated intervertebral discs. An experimental study in the rabbit.

AU Minamide A; Hashizume H; Yoshida M; Kawakami M; Hayashi
N; Tanaka T
CS Department of Orthopedic Surgery, Wakayama Medical College,
Japan.
minamide@wakayama-med.ac.jp

SO SPINE. (1999 May 15) 24 (10):940-5.
Journal code: UXX. ISSN: 0362-2436.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199909
EW 19990902
AB STUDY DESIGN: Histologic examination was performed on the
autologous **intervertebral*** **disc***

material that was removed from the intervertebral space at L1-L2 and then
relocated to the L4 posterior epidural space after the addition of basic fibroblast
growth factor (bFGF) in a rabbit. OBJECTIVES: To evaluate
whether basic fibroblast growth factor influences the resorption process of the
herniated **intervertebral*** **disc*** through the
promotion of angiogenesis and chemotaxis. SUMMARY OF BACKGROUND

DATA: It has been reported that newly formed vessels, inflammatory cells, and their
products may play an important role in the spontaneous resorption process of
herniated intervertebral discs. In a rabbit model that mimics the
sequestration type of **intervertebral*** **disc***
herniation, it has been reported that the ***autologous***
intervertebral

disc material that relocated into the epidural space was
penetrated by newly formed vessels originating from the epidural
fat tissue. Therefore, it is possible that promotion of angiogenesis may
influence the resorption of herniated intervertebral discs. Basic
fibroblast growth factor is well known as an angiogenesis
stimulation factor in vivo. METHODS: Thirty-six adult rabbits were divided
into three groups. The L1-L2 **intervertebral*** **disc*** was
partially incised through a retropneumal approach in each rabbit. The
harvested disc material, which contained nucleus pulposus and annulus
fibrosus, was immersed in one of three kinds of solution before relocation into
the posterior epidural space at L4. In the control group, the harvested
intervertebral **disc*** was immersed in
physiologic saline for 2 hours before relocation. In the group receiving 5 micrograms
bFGF, the disc was immersed in 5 micrograms/mL bFGF for 2 hours
before the relocation. In the group receiving 20 micrograms bFGF, the disc
was immersed in 20 micrograms/mL bFGF for 2 hours before the
relocation.

Rabbits of each group were killed for histologic examination 1, 2, 4,
and 8 weeks after surgery. RESULTS: In the bFGF-treated groups,
newly formed vessels were observed to be in more numerous than those in the
control group. 1 and 2 weeks after surgery. The number of inflammatory
cells, including macrophages, lymphocytes, and fibroblasts, also increased
in the

bFGF-treated groups. The period from the surgery to the degradation of the
 intervetral ***disc*** in the bFGF-treated groups was shorter than that in the control group, although the resorption process of the relocated discs was also observed in the control group. The size of the relocated discs was also observed in the control group. The size of relocated intervertebral discs in the bFGF-treated groups decreased at a higher rate than in the control group as time progressed. The rate of decrease in the size of discs in the group treated with 20 micrograms bFGF was more than that in the group treated with 5 micrograms.
 CONCLUSIONS:
 Epidural injection of bFGF facilitated the resorption of the ***intervetral*** ***disc*** relocated to the epidural space.

L36 ANSWER 3 OF 24 MEDLINE
 AN 1999304385 MEDLINE
 DN 99304385
 TI Disc excision in a Rottweiler dog with caudal cervical spondylomyelopathy after failure of intervertebral distraction/stabilisation
 AU Marchewicz A M, Richardson J L
 CS Division of Veterinary and Biomedical Sciences, Murdoch University,
 Western Australia
 SO AUSTRALIAN VETERINARY JOURNAL. (1999 May) 77 (5) 293-7
 Journal code: 91E ISSN: 0005-0423
 CY Australia
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199909
 EW 19990903
 AB A Rottweiler dog was presented with an 8 week history of hindlimb ataxia. Neurological examination localised the lesion to the cervical spinal cord.
 Myelography demonstrated dynamic compressive lesions at C5-6 and C6-7 consistent with a diagnosis of caudal cervical spondylomyelopathy. Distraction/stabilisation of both discs was performed using interbody polymethyl methacrylate. Both implants subsequently failed leading to extrusion of the remaining dorsal annulus fibrosus of the C5-6 ***intervetral*** ***disc*** and nonambulatory tetraparesis. A ventral slot combined with distraction/stabilisation using screws and polymethyl methacrylate was performed and resulted in nearly full neurological recovery.

L36 ANSWER 4 OF 24 MEDLINE DUPLICATE
 3
 AN 1998277593 MEDLINE
 DN 98277593
 TI Monocyte chemoattractant protein-1 in the ***intervetral*** ***disc***. A histologic experimental model.
 AU Kikuchi T, Nakamura T, Ikeda T, Ogata H, Takeguchi K
 CS Department of Orthopaedic Surgery, Kumamoto University School of Medicine,
 Japan. tam3p@kenji.medic.kumamoto-u.ac.jp
 SO SPINE. (1998 May 15) 23 (10) 1091-9.
 Journal code: UXX ISSN: 0362-2436
 CY United States
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199810
 EW 19981002
 AB STUDY DESIGN: Monocyte chemoattractant protein-1 was investigated in an experimental rat model using immunohistochemistry. OBJECTIVE: To ascertain the precise mechanism of macrophage recruitment in the early phase of disc resorption. SUMMARY OF BACKGROUND DATA: In previous studies, many investigators reported that disc herniation was resorbed by monocyte phagocytosis. However, how the recruitment of monocytes was triggered is still unknown. METHODS: The ***autologous*** intervertebral discs from tails of Wistar rats were subcutaneously implanted into the abdomen. These discs were obtained on days 2, 3, 7, and 14 after implantation and were used for immunohistochemical study and for quantitative analysis of monocyte chemoattractant protein-1 by sandwich enzyme-linked immunosorbent assay. RESULTS: Monocyte chemoattractant protein-1-positive granulocytes and macrophages were observed surrounding the ***intervetral*** ***disc***, and monocyte chemoattractant protein-1-positive chondrocytes were observed in the nucleus pulposus and the inner annulus fibrosus on day 3. By day 7, monocyte chemoattractant protein-1-positive and TRPM-3-positive macrophages appeared in the granulation tissue, and some of these cells invaded the nucleus pulposus and inner annulus fibrosus. The concentration of monocyte chemoattractant protein-1 was highest on day 3. CONCLUSION: ***intervetral*** ***disc***

chondrocytes have chemotactic properties and play an active role in the recruitment of monocytes involved in disc resorption.

L36 ANSWER 5 OF 24 MEDLINE DUPLICATE
 4
 AN 1998242054 MEDLINE
 DN 98242054
 TI Effects of steroid and lipopolysaccharide on spontaneous resorption of herniated intervertebral discs. An experimental study in the rabbit.
 AU Minamide A, Tanaka T, Hashizume H, Yoshida M, Kawakami M, Hayashi N
 CS Department of Orthopaedic Surgery, Wakayama Medical College, Japan.
 SO SPINE. (1998 Apr 15) 23 (8) 870-6.
 Journal code: UXX ISSN: 0362-2436.
 CY United States
 DT Journal, Article: (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199808
 EW 19980804
 AB STUDY DESIGN: Histologic examination was performed on autografted ***intervetral*** ***disc*** materials of rabbit models, which were partially incised through a retropneumal approach at L1-L2 and grafted within the posterior epidural space at L4. OBJECTIVE: To evaluate whether the resorption process of the herniated ***intervetral*** ***disc*** is influenced and controlled by treatments with medications. SUMMARY OF BACKGROUND DATA: Regarding resorption of herniated intervertebral discs, recent studies of magnetic resonance images and histologic investigations of surgically resected specimens in lumbar disc herniation patients have been reported. It has been shown that inflammatory factors may play an important role in the mechanism of resorption of the herniated ***intervetral*** ***disc***. However, little is known about the origin of newly formed vessels and inflammatory cells detected in herniated disc specimens from patients. In this study, The resorption process of disc material grafted into the epidural space was observed in a rabbit model. METHODS: Thirty-six adult rabbits were used. The L1-L2 ***intervetral*** ***disc*** was partially incised through a retropneumal approach. The harvested disc material, which contains the nucleus pulposus and the annulus

material, which contains the nucleus pulposus and the annulus

fibrosis were placed into the posterior epidural space at L4 of the same rabbit. The animals were divided into control, and steroid groups. The control group received no treatment after surgery. In the lipopoly-saccharide group, rabbits were injected 1 mg/kg into the peritoneum immediately and at 7 days after surgery. In the steroid group, rabbits were injected with 1 mg/kg betamethasone into the epidural space daily from 1 to 7 days after surgery. Rabbits of each group were killed for histologic examination at 1, 2, 4, and 8 weeks after surgery. RESULTS: At 1 and 2 weeks after surgery, inflammatory cells and newly formed vessels were more frequently observed in the lipopoly-saccharide group than in the control and steroid groups. At 4 weeks after surgery, derangement and loosening of collagen fibers were also observed in the lipopoly-saccharide group. At 8 weeks after surgery, fragmentation and partial disappearance of matrix were observed in the control and lipopoly-saccharide groups. Most of the intervertebral discs were replaced by fibrous tissues in the lipopoly-saccharide group. However, the matrix of the ***intervertebral*** ***disc*** almost remained.

CONCLUSIONS: ***Autologous*** ***Intervertebral*** ***disc*** material grafted into the epidural space was penetrated by newly formed vessels produced from the epidural fat tissue and resolved as the result of inflammatory reaction. Lipopoly-saccharide accelerated the replacement of grafted ***intervertebral*** ***disc*** by fibrous tissue, which suggests the resorption of the disc in the epidural space of the rabbit, whereas high-dose steroid suppressed the replacement.

L36 ANSWER 6 OF 24 MEDLINE
AN 1998302111 MEDLINE
DN 98302111
TI A surgical technique for a vertebral column autograft using the ***intervertebral*** ***disc*** for cervical disc disease.
AU Ito T, Minoshima S, Takada M, Seki T, Fujiwara S, Takebayashi S
CS Department of Neurosurgery, Kushiro Rosai Hospital, Japan
SO ACTA NEUROCHIRURGICA, (1998) 140 (3) 267-73
Journal code: 19C, ISSN: 0001-6268.
CY Austria
DT Journal, Article, (JOURNAL ARTICLE)
LA English

FS Priority Journals
EM4 199812
EW 19981201
AB We describe a surgical technique for a vertebral column autograft using the ***intervertebral*** ***disc*** for cervical disc disease for patients whose major problem is not spinal instability. Of a total of 41 patients with cervical disc disease suffering from cervical spondylotic radiculomyelopathy, 33 patients were operated on at one level and 8 patients were operated on at two levels. Postoperative X-ray film showed some movement at the "operated" disc level in all patients (average postoperative follow-up period was 43 months, range two years to 5 years). A significant decrease in motion in the extension position was observed postoperatively ($p < 0.0001$), but no significant difference was observed between the preoperative motion and the postoperative motion in the flexion position. Anterior angulation was found in two (5%) of the patients. This surgical procedure has two major advantages: 1) no complications related to the iliac donor site, allowing early patient mobilization; 2) the extensive posterior spur can be removed safely and easily under a wide operative field. We believe that this surgical procedure is suitable for preserving the mobility of the spine and may avoid stress concentration at adjacent levels of the "operated" disc. However, in patients whose major problem is spinal instability, anterior cervical fusion should be performed.

L36 ANSWER 7 OF 24 MEDLINE
AN 1998310736 MEDLINE
DN 98310736
TI Possible mechanism of painful radiculopathy in lumbar disc herniation
AU Kawakami M, Tanaka T, Hayashi N, Hashizume H, Nishi H
CS Department of Orthopedic Surgery, Wakayama Medical College, Japan
SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH, (1998 Jun) (351) 241-51
Journal code: DFT, ISSN: 0009-921X.
CY United States
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Abridged Index Medicus Journals, Priority Journals
EW 19980904
AB The pathophysiologic mechanisms of painful radiculopathy

caused by a herniated ***intervertebral*** ***disc*** remain unknown. This study sought to determine whether the ***autologous*** ***intervertebral*** ***disc*** produces pain related behavior and whether phospholipase A2 and nitric oxide are involved in the pathophysiologic mechanism producing the behavior. A rat model, in which ***autologous*** intervertebral discs were implanted on the nerve root in the lumbar spine, was used to measure hyperalgesia, which is a pain related behavior in the rat. In this experimental model, ***autologous*** nucleus pulposus and annulus fibrosus transplanted to lumbar nerve roots produced mechanical and thermal hyperalgesia, respectively. Epidural injection of a selective inhibitor for phospholipase A2 resulted in the disappearance of hypersensitivity to noxious mechanical stimuli. Thermal hyperalgesia produced by application of the annulus fibrosus was abated and abolished by epidural injections of saline and one of the inhibitors for nitric oxide synthase, respectively. The authors suggest that chemical mediators such as phospholipase A2 and nitric oxide, induced by extended or sequestered intervertebral discs, are involved in the pathophysiologic mechanisms of painful radiculopathy in lumbar disc herniations. This study may be useful in attempting to develop new medical approaches for treatments of lumbar disc herniation.

L36 ANSWER 8 OF 24 MEDLINE
AN 1998291888 MEDLINE
DN 98291888
TI Simultaneous combined anterior and posterior lumbar fusion with femoral cortical allograft.
AU Liljenqvist U, Örtengren R, Rantanen P
CS Spinal Surgery Unit, London Clinic, UK
SO EUROPEAN SPINE JOURNAL, (1998) 7 (2) 125-31.
Journal code: B9Y, ISSN: 0940-6719.
CY GERMANY, Germany, Federal Republic of
DT Journal, Article, (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM4 199810
EW 19981003
AB The radiographic fusion rates, graft behaviour and clinical outcome of 41 patient with simultaneous combined anterior lumbar interbody

fusion and

posterior arthrodesis with translamina screws were reviewed independently. In all patients a femoral cortical allograft (FCA) ring filled with ***autologous*** iliac crest cancellous bone was used

anteriorly to replace the disc and achieve interbody fusion. The follow-up averaged 30.6 months, with a minimum follow-up of 24 months. All patients

had disabling low-back pain with different degrees of radiating leg pain and either discogenic pain (n = 24) or a postdiscectomy syndrome (n = 15)

respectively postfusion syndrome (n = 2). The overall fusion rate was 95.2% (59 of 62 segments). Time to radiographic fusion averaged 8.7 months (range 2-34 months) and in 66.1% radiographic fusion occurred without

significant subsidence. In 18.6% fusion with subsidence resulted from resorption of the FCA and in 15.3% the FCA had protruded into the vertebral body. The posterior ***intervertebral*** ***disc***

height (PIVDH) increased postoperatively by 2 mm on average. However, loss of PIVDH was the rule, and occurred within the first 12 postoperative

months, resulting in a negligible final gain in height of 0.3 mm on average. The segmental lordosis was increased by 3 degrees; however, loss

of lordosis during the first 6 postoperative months led to a final gain in lordosis of 1.3 degrees on average. Graft incorporation occurred in 16 of

62 segments (25.8%) and was observed at an average of 21.9 months

postoperatively. Subjectively, 82.4% of the patients were satisfied or

highly satisfied with the clinical result of the fusion operation. In conclusion, the described technique has proven to be highly

effective in achieving a high fusion rate with a good patient outcome.

L36 ANSWER 9 OF 24 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 1998102308 EMBASE

T1 Compositional influences for regression of the sequestered lumbar disc

hernia in dogs.

AU Hasegawa T.; An H.S.; Inulisa A.; Fuse K.; Mikawa Y.;

Watanabe R.

CS Dr T. Hasegawa, Department of Orthopedic Surgery, Kawasaki

Medical

School, 577 Matsushima Kurashiki, Okayama 701-0192, Japan

SO Neuro-Orthopedics, (1998) 22(2) (69-75)

Refs 14

ISSN: 0177-7955 CODEN: NEORQO

CY Austria

DT Journal, Article

FS 005 General Pathology and Pathological Anatomy

008 Neurology and Neurosurgery

033 Orthopedic Surgery

LA English

SL English

AB The authors investigated compositional influences, comparing

between the nucleus pulposus and annulus fibrosus, in the regression of a sequestered

lumbar disc using an autogenous animal model in dogs. Nine mongrel dogs

weighing from 10 to 15 kg underwent L4-L5, L5-L6, L6-L7 interlaminar

fenestration and discectomies under general anesthesia.

Autologous

intervertebral ***disc*** fragments that were

obtained from the tail of the dogs were divided into annulus fibrosus and nucleus pulposus fragments. The annulus fibrosus and nucleus pulposus

fragments were placed in the anterolateral epidural space of L5-L6 and L6-L7

disc levels, respectively. L4-L5 discectomy served as control. Three dogs were

euthanized at a time at 4, 12, 24 weeks postoperatively. The lumbar spine

was removed carefully en bloc, prepared histologic sections consecutively

and examined. In the nucleus pulposus group, neovascularity and intensive

infiltration of lymphocytes and macrophages were observed at 4 weeks, and

a complete resolution of the nucleus pulposus resulted at 12 weeks after

surgery. In the annulus fibrosus group, inflammatory infiltration was

slight, and significant regression was not noted. This study revealed that

there are definite differences between the nucleus pulposus and the annulus fibrosus in terms of regression and tissue response

characteristics. The nucleus pulposus elicited more vascular and inflammatory responses early, and its resorption was greater as

compared to the annulus fibrosus.

L36 ANSWER 10 OF 24 MEDLINE

AN 97283038 MEDLINE

DN 97283038

T1 ***intervertebral*** ***disc*** autografting in a bipedal

animal

model.

AU Luk K.D.; Ruan D.K.; Chow D.H.; Leong J.C.

CS Department of Orthopedic Surgery, University of Hong Kong, China.

SO CLINICAL ORTHOPAEDICS AND RELATED RESEARCH,

(1997 Apr) (337) 13-26.

Journal code: DFY. ISSN: 0009-921X.

CY United States

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals, Priority Journals

EW 19970801

AB Fusion of the spine while restoring stability of the spinal segment, fails

to preserve spinal mobility. Long term complications of accelerated degeneration in the neighboring segments have been reported. The

present study explores the possibility of ***intervertebral***

disc autografting in a bipedal animal model by isolating a lumbar disc

together with the adjacent end plates and repositioning it with minimal

internal fixation. Fourteen Rhesus monkeys were sacrificed at 2, 4, 6, and

12 months after surgery and the grafted discs were examined

radiologically, biochemically, pathologically, and biomechanically. Healing of the

bony end plate was seen between 2 to 4 months postoperatively. There

was early loss of disc height at 2 and 4 months but there was a suggestion of

some reconstitution up to 12 months. There was minimal evidence of

gross degeneration at all stages. Gradual loss of water content was found

in the annulus and the nucleus. The nucleus pulposus seemed to be able

to reaccumulate proteoglycan after an initial drop in the first 4 months.

There was significant increase in hydroxyproline content in the

annulus fibrosus and the nucleus pulposus. Biomechanically, the grafted

disc showed hypermobility in the first 4 months but gradually became

stabilized with time. Results from this study suggested that a fresh

intervertebral ***disc*** autograft could survive a period of

ischemia. Although the physiology of the disc was deranged, it was

able to preserve a certain degree of segmental mobility without sacrificing

stability. Further studies are required to validate these results and the

field of disc allografting should be explored

L36 ANSWER 11 OF 24 MEDLINE
AN 96415389 MEDLINE
DN 96415389
T1 New surgical technique of anterior decompression for cervical disc

disease: vertebral column autograft with the ***interventral***
disc after anterior cervical decompression.

AU Iai T, Minoshima S, Takeida M, Takebayashi S, Seki T

CS Department of Neurosurgery, Kushin Hospital, Kushin,
Japan.

SO NO SHINKAI GEKA. NEUROLOGICAL SURGERY. (1996
Sep) 24 (9) 823-7.

Journal code: NYY. ISSN: 0301-2603.

CY Japan

DT Journal, Article: (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 199701

EW 19970104

AB The authors describe the surgical technique of vertebral column
autograft.

with the ***interventral*** ***disc*** after anterior
decompression for cervical disc disease. This series consisted of 41
patients with cervical disc disease suffering from cervical
spontylotic

radiculomyelopathy. There were 27 men and 14 women, ranging in
age from 27

to 72 years (mean age 49 years). 33 patients were operated on at
one level

and 8 patients at two levels. The average postoperative follow-up
period

was one year 10 months and ranged from 6 months to 3 years 3
months. The

patients were generally allowed out of bed wearing a soft collar
within 1

day postoperatively. The collar was used for 2 months after surgery.
The

postoperative course of all patients was uneventful and neurological
symptoms improved. Postoperative X-ray films showed some
movement in the

operated disc level in all patients. The authors think that this
surgical

procedure may be suitable for preserving mobility of the spine.

L36 ANSWER 12 OF 24 MEDLINE

7 DUPLICATE

AN 96260914 MEDLINE

DN 96260914

TI Long-term evaluation of radiographic changes following cervical
anterior

fusion with hydroxyapatite ceramic spacer.

AU Imai S, Hara Y, Koyama T

CS Department of Neurosurgery, Ohtsu Municipal Hospital, Japan.

SO NO SHINKAI GEKA. NEUROLOGICAL SURGERY. (1996
Jun) 24 (6) 335-40.

Journal code: NYY. ISSN: 0301-2603.

CY Japan

DT Journal, Article: (JOURNAL ARTICLE)

LA Japanese

FS Priority Journals

EM 199610

AB Cervical anterior fusion with iliac bone crest has become a

popular
surgical technique for cervical spontylotic disease. Since about 10
years

ago, we have substituted hydroxyapatite ceramic spacer for
autologous graft because of postoperative painful hip
syndrome.

Fourteen patients who underwent cervical anterior fusion with
ceramic

spacer were evaluated by plain radiographs for over eight years
postoperatively. In six among the fourteen patients plain films
demonstrated minimal stenosis of ***interventral***

disc
height, of which the ratio ranged from 15% to 28% (mean 22%).

The increase
in mobility of the adjacent segment after fusion was noted in ten of
the

fourteen patients, although the ratio ranged only between 12% and
24%
(mean 18%). In none of all the patients did dynamic plain films

show
cervical instability such as slippage and swan neck deformity. It
seems

that anterior fusion with ceramic spacer is a useful and safe method
for a

cervical spontylotic disease.

L36 ANSWER 13 OF 24 MEDLINE DUPLICATE

8

AN 96272130 MEDLINE

DN 96272130

TI Median corpectomy in cervical spontylotic multisegmental
stenosis.

AU Burger R, Torn J C, Vince G H, Hofmann E, Reiners K, Roosen

K

CS Neurochirurgische Klinik, Universitaet Wurzburg

SO ZENTRALBLATT FUR NEUROCHIRURGIE. (1996) 57 (2)

62-9.

Journal code: YGC. ISSN: 0044-4251.

CY GERMANY: Germany, Federal Republic of

DT Journal, Article: (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199611

AB Cervical median corpectomy as an alternative to laminoplasty and
laminectomy has been suggested as an effective treatment for

cervical
spontylotic myelopathy (CSM) in cases of multisegmental
spontylotic

stenosis. We report on our experience with this procedure with
particular

reference to neurological outcome and complications. Median
corpectomy was

performed in 17 cases (3 female, 14 male; mean age 59 yrs. (41-80
yrs.)

with cervical myelopathy (CM) and radiologically diagnosed
multisegmental

spontylotic stenosis and spinal cord compression seen on MRI.

The degree
of stenosis was determined by means of the modified Pavlov's
index (ratio

between spinal canal width at the level of the
interventral
disc and the diameter of the vertebral body itself) 3/17

patients
suffered from acute, 4/17 from subacute and 10/17 from chronic
CM. Single

level corpectomy was performed in 9 cases, one and a half
vertebrae were

removed in 2 cases and dual level corpectomy was performed in the
remaining 6 cases. All patients received an ***autologous***

bone
graft and AO - anterior plate stabilization or were stabilized as
described by Morscher. Postoperative follow - up was possible in

16/17
cases over a mean time of 13.5 months. Myelopathy was graded
according to

Nurick's scale. Postoperatively, 12% with chronic CM improved by
two

grades, 38% (2 pts. with acute, 3 with subacute and 1 with chronic
CM)

improved by one grade. The other patients remained stable, none
showed

worsening of their myelopathy. Paresis improved in 92%, sensory
deficits

in 69%, spasticity in 73%, pain in 60%, and vegetative disturbances
in

100% of all patients presenting these preoperative symptoms
respectively.

One patient died due to esophageal perforation and subsequent
lethal

mediastinitis caused by screw loosening 4 months following surgery
and

after initial neurological improvement. 4 other patients experienced
screw

loosening. Three with acauposis, one remained clinically
asymptomatic

with concomitant graft displacement in two of these. One patient
had to be

re-operated due to a herniation at the iliac crest and 2 suffered from
a

pelvic fracture of the spina iliaca at the site of graft removal. With
respect to the neurological improvement, especially to the motor

function
and spasticity, median corpectomy can be regarded as an effective
procedure in selected cases with cervical myelopathy, even when

treatment
related complications are taken into consideration.

L36 ANSWER 14 OF 24 MEDLINE DUPLICATE

9

AN 96034623 MEDLINE

DN 96034623

TI The role of inflammation in lumbar pain [see comments]

CM4 Comment in: Spine 1996 Apr 1;21(7) 898-9

AU Saal JS
 CS SOAR, Physiatry Medical Group, Menlo Park, California, USA
 SO SPINE, (1995 Aug 15) 20 (16) 1821-7. Ref: 45
 Journal code: UXX. ISSN: 0362-2436
 CY United States
 DT Journal Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW, TUTORIAL)
 LA English
 FS Priority Journals
 EM 199603
 AB The clinical features of many cases of low back pain is explained by anatomic abnormalities alone. A pathophysiologic mechanism that includes a combination of mechanical and biochemical factors is an alternative explanation that is accompanied by less paradox than a purely structural paradigm. A potential unifying feature includes inflammation of neural elements caused by the chemical components of the ***intervertebral*** ***disc***. There is a historical basis to the concept of an immunologic potential of the lumbar disc. No discrete in situ evidence or discrete mechanism has been previously identified. The recent demonstration of immunohistopathologic evidence of an immunocompetent cellular response at the epidural interface of lumbar HNP's supports the concept of the immunogenic capacity of nucleus pulposus. The identification of high levels of an inflammatory enzyme, phospholipase A2, in lumbar herniated and degenerative discs presents the basis for a direct inflammatory capability of lumbar discs, separate from an immunologic mechanism. Subsequent experimental findings of conduction block and perineural inflammation as a consequence of extraneural application of ***autologous*** nucleus pulposus and axonal injury after animal nerve injection of the human disc phospholipase A2 further validates this concept. There is a strong theoretic basis to support the concept that the clinical features of many lumbar disc patients may be explained by inflammation caused by biochemical factors alone or combined with mechanical deformation of lumbar tissues, rather than mechanical factors alone.

L36 ANSWER 15 OF 24 MEDLINE
 AN 95064279 MEDLINE

DN 95064279
 TI Lumbar ***intervertebral*** ***disc*** transfer. A canine study.
 AU Frick S L, Hanley E N Jr, Meyer R A Jr, Ramp W K, Chapman T M
 CS Department of Orthopaedic Surgery, Carolinas Medical Center, Charlotte, North Carolina.
 SO SPINE, (1994 Aug 15) 19 (16) 1826-34; discussion 1834-5.
 Journal code: UXX. ISSN: 0362-2436.
 CY United States
 DT Journal Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 199502
 AB STUDY DESIGN: Degenerative lumbar disc disease has been implicated as a cause of low back pain. Current treatment options for low back pain involve nonphysiologic fusion of the involved segments and have variable success rates. This is an experimental study of lumbar ***intervertebral*** ***disc*** transplantation using a canine surgical model. OBJECTIVES: This study evaluated the feasibility of lumbar disc transplantation and its effects on disc metabolism and morphology. METHOD: Eight mature mongrel dogs underwent disc transfer surgeries, in which the L2-L3 and L4-L5 intervertebral discs, with a small segment of adjacent superior and inferior vertebral body, were removed and transposed. The transplanted disc were stabilized by plates or by a flexible cable wire construct using Songer cables (DANEX, Inc., Memphis, TN). Unrestricted activity was allowed postoperatively. At 4 months, the spines were harvested, and the transplanted discs were evaluated biochemically and histologically. Intervening nontransplanted discs served as viable controls and thrice-frozen discs served as nonviable controls. Cell viability was assessed by measuring proteoglycan synthesis and DNA content. RESULTS: Proteoglycan synthesis (35S uptake normalized to DNA content) was maintained in transplanted anulus fibrosus tissue, but was decreased in nucleus pulposus samples ($P < 0.05$). DNA content was not altered significantly in the transplanted discs. Histologic analysis of the transplanted discs showed revascularization and remodeling of the bone adjacent to the disc and preservation of the lamellar architecture of the anulus fibrosus. The transplanted nucleus pulposus samples had chondrocyte-like cells present, but the staining characteristics of the

L36 ANSWER 16 OF 24 MEDLINE
 AN 95179585 MEDLINE
 DN 95179585
 TI Anterior lumbar fusion using a hybrid interbody graft. A preliminary radiographic report.
 AU Holte D C, O'Brien J P, Rention P
 CS London Clinic, UK.
 SO EUROPEAN SPINE JOURNAL, (1994) 3 (1) 32-8. Ref: 32
 Journal code: B9Y. ISSN: 0940-6719.
 CY GERMANY: Germany, Federal Republic of
 DT Journal Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW OF REPORTED CASES)
 LA English
 FS Priority Journals
 EM 199506
 AB This is a radiographic report of 40 patients (20 men, 20 women) who underwent anterior lumbar interbody fusions (73 levels) utilizing a "hybrid" interbody graft composed of femoral cortical allograft (FCA) bone and iliac crest cancellous autograft bone. The average age at surgery was 38 years (range 17-64 years), and follow-up averaged 1.4 years (range 1.0-2.4 years). Nineteen of the patients had undergone previous lumbar surgery. Thirty-two patients (63 levels) underwent anterior fusion combined with some type of posterior fixation, and eight patients (10 levels) had no posterior fixation. Types of posterior fixation included: for 20 patients (36 levels) Steffee variable screw placement fixation, for 10 patients (23 levels) translamina facet screws (TFS), for 1 patient (3 levels) Knott rods and for 1 patient (1 level) facet screws. Based on the persistence of lucent lines at the graft-host interface, three patients (one level each) were felt to have non-unions at their latest follow-ups at 1.4, 1.5 and 2.0 years, respectively. Two of these patients had posterior fixation, and the other had TFS fixation. The overall fusion rate was 96% (70 of 73 levels). The fusion rate for all levels treated with posterior fixation was 98% compared with 75% for those without fixation. ***intervertebral*** ***disc*** heights (IVDH) were

nucleus material was variable. The contour of the transplanted disc endplates was irregular in all specimens. CONCLUSIONS: The structure and function of autograft intervertebral discs were maintained after disc transfer surgery; the transplant discs, however, were not completely normal in either their morphology or their metabolic functioning.

L36 ANSWER 17 OF 24 MEDLINE
 AN 95179585 MEDLINE
 DN 95179585
 TI Anterior lumbar fusion using a hybrid interbody graft. A preliminary radiographic report.
 AU Holte D C, O'Brien J P, Rention P
 CS London Clinic, UK.
 SO EUROPEAN SPINE JOURNAL, (1994) 3 (1) 32-8. Ref: 32
 Journal code: B9Y. ISSN: 0940-6719.
 CY GERMANY: Germany, Federal Republic of
 DT Journal Article; (JOURNAL ARTICLE)
 General Review; (REVIEW)
 (REVIEW OF REPORTED CASES)
 LA English
 FS Priority Journals
 EM 199506
 AB This is a radiographic report of 40 patients (20 men, 20 women) who underwent anterior lumbar interbody fusions (73 levels) utilizing a "hybrid" interbody graft composed of femoral cortical allograft (FCA) bone and iliac crest cancellous autograft bone. The average age at surgery was 38 years (range 17-64 years), and follow-up averaged 1.4 years (range 1.0-2.4 years). Nineteen of the patients had undergone previous lumbar surgery. Thirty-two patients (63 levels) underwent anterior fusion combined with some type of posterior fixation, and eight patients (10 levels) had no posterior fixation. Types of posterior fixation included: for 20 patients (36 levels) Steffee variable screw placement fixation, for 10 patients (23 levels) translamina facet screws (TFS), for 1 patient (3 levels) Knott rods and for 1 patient (1 level) facet screws. Based on the persistence of lucent lines at the graft-host interface, three patients (one level each) were felt to have non-unions at their latest follow-ups at 1.4, 1.5 and 2.0 years, respectively. Two of these patients had posterior fixation, and the other had TFS fixation. The overall fusion rate was 96% (70 of 73 levels). The fusion rate for all levels treated with posterior fixation was 98% compared with 75% for those without fixation. ***intervertebral*** ***disc*** heights (IVDH) were

measured on all films and corrected for magnification with computer assistance. On average, the IVDH was increased postoperatively but returned to preoperative values at follow-up. IVDH loss was independent of the type of instrumentation used. No complications arose from the use of the hybrid graft (ABSTRACT TRUNCATED AT 250 WORDS)

L36 ANSWER 17 OF 24 EMBASE COPYRIGHT 2000

ELSEVIER SCI B.V DUPLICATE 10

AN 92216677 EMBASE

DN 1992216677

TI An analysis of risk factors to predict the necessity of perioperative transfusions in ***interventive*** ***disc*** surgery.

AU Dauch W A; Lang E; Bauer B L.

CS Department of Neurosurgery, Centre of Operative Medicine I, Philips University, Baldingerstrasse, W-3550 Marburg/Lahn, Germany

SO Theoretical Surgery, (1992) 7/3 (124-127)

ISSN: 0179-8669 CODEN: THSLUE6

CY Germany

DT Journal, Article

FS 008 Neurology and Neurosurgery

LA English

SL English

AB Homologous blood transfusions are currently performed during many surgical procedures. The growing awareness of possible infectious and allergic

complications has given rise to the development of alternatives to ***autologous*** transfusion, such as intraoperative cell-saving techniques, or preoperative deposition of the patient's own blood. It seems desirable to predict preoperatively whether or not a patient is at

risk for major intraoperative blood loss in order to limit waste of materials, patient's blood and manpower. Clinical risk research is capable of estimating this risk quantitatively, as this paper demonstrates, for decompressive low back surgery in patients suffering from degenerative diseases of the lumbar spine. Three features - age, preoperative haemoglobin level, and surgical procedure - are sufficient to distinguish between high-risk and low-risk patients. The former run a 7.4 times higher risk of requiring intraoperative transfusions than the latter.

L36 ANSWER 18 OF 24 MEDLINE

AN 90015315 MEDLINE

DN 90015315

TI [Anterior discectomy as treatment for a cervical radicular syndrome].

De anterieure discectomie als behandelings voor een cervicale radiculair syndroom.

AU van den Bent M J; van Acker R E; Meyer J
SO NEDERLANDS TIJDSCHRIFT VOOR GENESKUNDE,
(1989 Aug 5) 133 (31) 1550-4

Journal code: NOK ISSN: 0028-2162.

CY Netherlands

DT Journal, Article, (JOURNAL ARTICLE)

LA Dutch

EM 199001

AB The results are presented of a retrospective survey of anterior cervical surgery followed by fusion with ***autologous*** bone grafting for the treatment of radiculopathy due to cervical ***interventive***

disc prolapse or spondylosis. The study included 46 patients, with a follow-up period of at least a year. Follow-up examination was performed by an independent observer. Of the patients 38 (83%) were improved, 34

(74%) having a good or excellent response. Postoperative complications were minor: the most frequent complication was pain or dysesthesia at the donor site of the bone graft, the iliac crest. It is questionable whether

autologous bone grafting is indicated following anterior discectomy.

L36 ANSWER 19 OF 24 MEDLINE

AN 90015522 MEDLINE

DN 90015522

TI Effect of age on the abundance and fragmentation of link protein of the human ***interventive*** ***disc***

human ***interventive*** ***disc***

AU Pearce R H; Mathieson J M; Mort J S; Roughley P J

CS Department of Pathology, Faculty of Medicine, University of British Columbia, Vancouver, Canada

SO JOURNAL OF ORTHOPAEDIC RESEARCH, (1989) 7 (6) 861-7.

Journal code: JIQ ISSN: 0736-0266

CY United States

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 199001

AB The link proteins of the human ***interventive*** ***disc*** were studied in tissue extracts by sodium dodecyl sulfate/polyacrylamide

gel electrophoresis (SDS/PAGE), followed by immunoblotting, using a specific monoclonal antibody. Three link proteins were detected, corresponding in electrophoretic mobility to those present in articular cartilage. As with articular cartilage, the largest link protein

predominates in the young, whereas in the adult the smallest link protein is equally abundant and internal fragmentation of the link proteins occurs. Only in the newborn is the quantity of extractable link protein comparable to that from articular cartilage. In the adult, the disc contains much less link protein than is present in ***autologous***

articular cartilage. Neither the amount nor heterogeneity of the link protein differs among different levels within the lumbar spine, although the proportions of the three proteins can differ between the annulus fibrosus and nucleus pulposus. The annulus always contained more extractable link protein relative to tissue wet weight than the nucleus,

and the nuclear link protein, at least in adolescents, contained a greater proportion of the smallest link protein. Such changes in the quantity and structure of the disc link proteins may affect the properties of the proteoglycan aggregates and, thus, could influence disc function.

L36 ANSWER 20 OF 24 MEDLINE

AN 81113360 MEDLINE

DN 81113360

TI Anterior route ***interventive*** ***disc*** excision and bone grafting in cervical spondylitic myelopathy.

AU Zhang Z H; Yin H F; Yang K Q; Zhang T C; Dong F C; Dang G D; Lou S Q; Cai Q L

SO CHINESE MEDICAL JOURNAL, (1980 Dec) 93 (12) 865-8. Journal code: D3B ISSN: 0366-6999.

CY China

DT Journal, Article, (JOURNAL ARTICLE)

LA English

EM 198106

L36 ANSWER 21 OF 24 MEDLINE

AN 78204506 MEDLINE

DN 78204506

TI Fracture dislocation of the cervical spine. Value of anterior approach with bovine bone interbody fusion.

AU Goran A; Murthy K K

SO SPINE, (1978 Jun) 3 (2) 95-102.

Journal code: UNX ISSN: 0362-2436.

CY United States

DT Journal, Article, (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 197810

AB Twenty surgically treated cases of fracture dislocation of the cervical spine are presented. All patients had hyperflexion injuries with associated rupture of the ***interventive*** ***disc***

All

patients were operated on through an anterior surgical approach.
 Ten consecutive patients had interbody fusion with autogenous bone and ten consecutive patients were fused anteriorly with bovine (Ket) bone. All patients' injuries fused satisfactorily. There was no significant difference between the use of autogenous bone and bovine bone.

L36 ANSWER 22 OF 24 MEDLINE
 AN 78247268 MEDLINE
 DN 78247268
 TT A technical modification of Cloward's posterior lumbar interbody fusion.
 AU Lin P M
 SO NEUROSURGERY. (1977 Sep-Oct) 1 (2) 118-24.
 Journal code: NZL. ISSN: 0148-396X.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Priority Journals
 EM 197812
 AB The concept of interbody (intercorporeal) fusion as a useful treatment for ***intervertebral*** disease in the cervical area has been well received. Thirty-two years have passed since Cloward first introduced his technique of posterior lumbar intervertebral fusion. The author believes that the delayed acceptance of this procedure is due to fear of technical difficulties. A technical modification of Cloward's posterior lumbar interbody fusion is introduced. It entails better technique in controlling epidural bleeding by careful positioning of the patient and the use of oxidized cellulose as a tampon in the epidural space. The integrity of the facet is preserved through a more limited interlaminar approach. Osteosynthesis of the grafts is assured by multiple perforations of the cortical plate in accordance with Robinson's principle utilized in cervical interbody fusion. The author believes that the modification simplifies the Cloward posterior lumbar interbody fusion. It also assures better stability after surgery by retention of the facet and lessening the dangers of settlement of the graft by preservation of the cortical plate. In a series of 75 cases, tomograms made 4 months after operation have shown a viable graft with active osteosynthesis between the graft and the adjoining vertebral bodies in 94%.

L36 ANSWER 23 OF 24 MEDLINE
 AN 75134887 MEDLINE

DN 75134887
 TT Intervertebral bone implants following excision of protruded lumbar discs.
 AU Christensen L A, Selland B
 SO JOURNAL OF NEUROSURGERY. (1975 Apr) 42 (4) 401-5.
 Journal code: J03. ISSN: 0022-3085.
 CY United States
 DT Journal; Article; (JOURNAL ARTICLE)
 LA English
 FS Abridged Index Medicus Journals; Priority Journals
 EM 197508
 AB The authors describe a technique whereby a portion of the lamina removed during exposure of an intervertebral lumbar disc protrusion is implanted in the ***intervertebral*** space following disc excision. An analysis of 456 consecutive cases operated on by this technique and followed from 1 to 10 years is presented. Of the 418 patients followed, 92 per cent indicated they were able to return to their normal activities and were satisfied with the result. Thirty percent of the patients indicated they had required some conservative treatment for recurrent episodes of back or leg pain. Ten patients had subsequent surgery, only one implant has dislocated.

L36 ANSWER 24 OF 24 EMBASE COPYRIGHT 2000
 ELSEVIER SCI. B. V.
 AN 76002665 EMBASE
 DN 1976002665
 TT In vitro inhibition of leukocyte migration in patients with ***intervertebral*** lesions.
 AU Elves M.W.; Bucknill T.; Sullivan M.F.
 CS Inst. Orthop. Univ. London, United Kingdom
 SO Orthopedic Clinics of North America, (1975) 6(1) (59-65).
 CODEN: OCLNAQ
 DT Journal
 FS 033 Orthopedic Surgery
 005 General Pathology and Pathological Anatomy
 019 Rehabilitation and Physical Medicine
 031 Arthritis and Rheumatism
 LA English
 AB Patients with the prolapsed intervertebral disk syndrome were examined for sensitization to ***autologous*** intervertebral disk extract using the leukocyte migration inhibition test. 3 Patients of 12 studied 10 to 14 days after diskectomy showed inhibition of leukocyte migration. All 3 patients had sequestered protruded disks. None of the 8 patients with disk protrusion and no sequestration gave a positive reaction. In one patient who was studied in detail, inhibition of leukocyte migration occurred in the presence of disk extract from another, nonsensitized

patient. It was found that leukocyte migration was inhibited strongly and nonspecifically by disk extracts in high concentration. This effect could be eliminated by dilution.

=> e hanley edward/au

E1 11 HANLEY E W/AU
 E2 1 HANLEY EARL/AU
 E3 0 -> HANLEY EDWARD/AU
 E4 1 HANLEY EDWARD J/AU
 E5 1 HANLEY EDWARD M R/AU
 E6 1 HANLEY EDWARD N/AU
 E7 28 HANLEY EDWARD N R/AU
 E8 2 HANLEY EDWARD NATHANIEL R/AU
 E9 5 HANLEY EDWARD W/AU
 E10 2 HANLEY ELISEN/AU
 E11 1 HANLEY ELISEN M/AU
 E12 1 HANLEY ELLIS/AU

=> s ed-c8

L37 31 (*HANLEY EDWARD N R/AU OR HANLEY EDWARD N R/AU OR HANLEY EDWARD NATHANIEL R R/AU)

=> s l37 and intervertebral/ab/bi

'AB' IS NOT A VALID FIELD CODE
 L38 7137 AND INTERVERTEBRAL/AB,BI

=> dup rem l38

PROCESSING COMPLETED FOR L38
 L39 6 DUP REM L38 (1 DUPLICATE REMOVED)

=> d i-bib ab

YOU HAVE REQUESTED DATA FROM 6 ANSWERS - CONTINUE? Y(N)Y

L39 ANSWER 1 OF 6 CAPLUS COPYRIGHT 2000 ACS
 AN 2000604181 CAPLUS
 TT Optimization of 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester for labeling human ***intervertebral*** disc cells in vitro
 AU Gruber, Helen E.; Leslie, Kelly P.; Ingram, Jane A.; ***Hanley, Edward***
 *** N, Jr ***
 CS Orthopaedic Research Biology, Carolinas Medical Center, Charlotte, NC.
 38232, USA
 SO Biotech Histochem (2000) 75(3), 118-123
 CODEN: BIHIIEU. ISSN: 1052-0295

PB Lippincott Williams & Wilkins
 DT Journal
 LA English
 AB We have assessed the utility of an intracellular fluorochrome, 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester (CFSE), as a tracking label for human ***intervetretal*** disk cells in vitro. Although 5 .mu.M provides adequate intracellular labeling for whole cell fluorescent microscopic identification of labeled cells, 20 .mu.M was preferable for immunocytochem. localization of paraffin embedded labeled cells. Electron dense vesicles are seen at the ultrastructural level in labeled cells. Discrete vesicular labeling can also be obsd. in whole cell mounts viewed with fluorescence microscopy. Whole cells retain good label for 6 wk. CFSE labeling is relatively easy, nontoxic to cells and nonradioactive. Initial optimization of dose with specific cells types is recommended when confirmation of pos. immunocytochem. is needed for tissue engineering studies

L39 ANSWER 2 OF 6 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 50459255 INPADOC EW 1999925 UP 19991109 UW 199944
 TI METHOD FOR PRODUCING HUMAN ***INTERVERTERAL*** DISC CELLS
 IN HANLEY, EDWARD, NATHANIEL, JR.; GRUBER, ELIZABETH HELEN
 INS ***HANLEY EDWARD NATHANIEL JR***; GRUBER ELIZABETH HELEN
 INA US; US
 PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY, HANLEY, EDWARD, NATHANIEL, JR.; GRUBER, ELIZABETH HELEN
 PAS CHARLOTTE-MECHLENBURG HOSPITAL, HANLEY EDWARD NATHANIEL JR; GRUBER ELIZABETH HELEN
 PAA US; US; US
 TL English; French
 LA English
 DT Patent
 PTT WO/01 PUBL.OF THE INT.APPL. WITH INT.SEARCH REPORT
 PI WO 9927077 A1 19990603
 DS RW; GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CN GA GN GW ML NR NE SN TD TG
 W: AL AM AT AT AU AZ BA BB BG BR BY CA CH CN CU CZ CZ DE DK EE EE

ES FI FI GB GE GH GM HR HU ID IL JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL ST TM TR TT UA UG US UZ VN YU ZW
 AL WO 1998-US25137 A 19981124
 PRAI US 1997-979674 A 19971126
 OSDW 99-385212
 AB There is provided a method for growing human ***intervetretal*** cells. Disc tissue is surgically removed from a normal disc of a patient, the cells expanded by feeding with a cell stimulant such as a growth factor, or a cytokine or a bioactive agent to form monolayer primary cell cultures on a plastic mesh such as a nylon mesh. In the case of a growth factor, fetal bovine serum is preferred as it improves cell proliferation and production of appropriate extracellular matrix components. In another aspect of this invention, the monolayer primary cell cultures are seeded in alginate or agarose and fed again with the cell stimulant until three-dimensional cell cultures are formed. The cells are recovered from the alginate or agarose or from monolayer cultures. Re-implantation is carried out using bioresorbable carriers or cell suspensions.

L39 ANSWER 3 OF 6 INPADOC COPYRIGHT 2000 EPO

LEVEL 1
 AN 113020209 INPADOC ED 19990916 EW 199936 UP 19990916 UW 199936
 TI METHOD FOR PRODUCING HUMAN ***INTERVERTERAL*** DISC CELLS
 IN EDWARD NATHANIEL HANLEY JR.; ELIZABETH HELEN GRUBER
 INS ***HANLEY EDWARD NATHANIEL JR***; GRUBER ELIZABETH HELEN
 PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY
 PAS CHARLOTTE-MECHLENBURG HOSPITAL
 DT Patent
 PTT AU/1 CON.P. SPEC. OPEN TO PUB. INSP.
 PI AU 9916045 A1 19990615
 AI AU 1999-16045 A 19981124
 PRAI US 1997-979674 A 19971126
 WO 1998-US25137 W 19981124

L39 ANSWER 4 OF 6 CAPLUS COPYRIGHT 2000 ACS
 AN 1997772149 CAPLUS
 DN 128.87023
 TI Characterization and phenotypic stability of human disk cells in vitro
 AU Gruber, Helen E.; Staszy, Audrey A.; ***Hanley, Edward N.,

It.***
 CS Department of Orthopedic Surgery, Carolinas Medical Center, Charlotte, NC, USA
 SO Matrix Biol. (1997), 16(5), 285-288
 CODEN: MTEBOC; ISSN: 0945-053X
 PB Gustav Fischer Verlag Jena GmbH
 DT Journal
 LA English
 AB Successful in vitro studies of disk cells require interaction of the cell with a compatible microenvironment which favors expression of the disk cell phenotype. The objective of this study was to characterize cells grown by standardized methods of isolation and passage, and culture cells from the human annulus in three-dimensional culture. Cells from the annulus of 11 individuals were cultured in alginate or agarose for ten days, and extracellular matrix components were evaluated with immunohistochem. and quant. anal. of the percent of colonies producing Type I or II collagen, 4-sulfated chondroitin sulfate or keratan sulfate. Results show prodn. of these four extracellular matrix products through multiple passages and support the phenotypic stability of disk cells in three-dimensional culture.

L39 ANSWER 5 OF 6 BIOSIS COPYRIGHT 2000 BIOSIS
 DUPLICATE 1
 AN 1997.449258 BIOSIS
 DN PREV199799748461
 TI Human ***intervetretal*** disc cells from the annulus. Three-dimensional culture in agarose or alginate and responsiveness to TGF-beta-1.
 AU Gruber, Helen E. (1); Fisher, E. Carl, Jr.; Desai, Bhaloo; Staszy, Audrey A.; Hoelscher, Gretchen; ***Hanley, Edward N., Jr.***
 CS (1) Dep. Orthopaedic Surgery, Carolinas Med. Cntr., P.O. Box 32861, Charlotte, NC 28232 USA
 SO Experimental Cell Research. (1997) Vol. 235, No. 1, pp. 13-21. ISSN: 0014-4827.
 DT Article
 LA English
 AB Cell culture procedures were developed for use with surgical and normal control specimens of the annulus of the human ***intervetretal*** disc. Cells were established in monolayer explant culture and seeded into three-dimensional growth environments of alginate or agarose;

under these growth conditions cells assumed a rounded phenotype and formed colonies. A novel method of layering suspensions of cells onto cell well inserts proved technically much easier than the microbead culture method. Immunohistochemistry was utilized to demonstrate in vitro production of the following extracellular matrix components: types I, II, III, and VI collagen, 4-S-chondroitin sulfate, and keratan sulfate. Young and old age- and gender-matched cells grown in the presence of TGF-beta-1 showed significant enhancement of proliferation after 4 days of exposure to TGF-beta with a lessened mitogenic response present after 10 days. Molecular studies of proteoglycan gene expression showed that at 4 days young normal cells had increased biglycan, but not decorin, message levels. Decorin expression was unchanged at Day 4 and decreased or shut off by Day 10. Results support the use of three-dimensional culture systems for in vitro evaluation of human disc cell function and expand our understanding of the in vitro behavior of these cells.

L39 ANSWER 6 OF 6 BIOSIS COPYRIGHT 2000 BIOSIS
 AN 1994-445252 BIOSIS
 DN PREVI199497458252
 T1 Lumbar ***intervetral*** disc transfer: A canine study.
 AU Frick, Steven L. (1). ***Hanley, Edward N., Jr.*** ; Meyer, Ralph A.; Ramp, Warren K.; Chapman, Todd M.
 CS (1) Dep Orthopaedic Surg, Carolinas Med. Cent., P. O. Box 32861, Charlotte, NC 28232 USA
 SO Spine, (1994) Vol. 19, No. 16, pp. 1826-1835.
 ISSN 0362-2436.
 DT Article
 LA English
 AB Study Design Degenerative lumbar disc disease has been implicated as a cause of low back pain. Current treatment options for low back pain involve morphologic fusion of the involved segments and have variable success rates. This is an experimental study of lumbar ***intervetral*** disc transplantation using a canine surgical model.
 Objectives: This study evaluated the feasibility of lumbar disc transplantation and its effects on disc metabolism and morphology.
 Method: Eight mature mongrel dogs underwent disc transfer surgeries, in which the L2-L3 and L4-L5 ***intervetral*** discs, with a small segment of adjacent superior and inferior vertebral body, were removed and transposed. The transplanted discs were stabilized by plates or by a

flexible cable wire construct using Songer cables (DANEC, Inc., Memphis, TN). Unrestricted activity was allowed postoperatively. At 4 months, the spines were harvested, and the transplanted discs were evaluated biochemically and histologically. Intervening nontransplanted discs served as viable controls and three-frozen discs served as nonviable controls.
 Cell viability was assessed by measuring proteoglycan synthesis and DNA content. Results: Proteoglycan synthesis (35S uptake normalized to DNA content) was maintained in transplanted annulus fibrosus tissue, but was decreased in nucleus pulposus samples (P < 0.05). DNA content was not altered significantly in the transplanted discs. Histologic analysis of the transplanted discs showed revascularization and remodeling of the bone adjacent to the disc and preservation of the lamellar architecture of the annulus fibrosus. The transplanted nucleus pulposus samples had chondrocyte-like cells present, but the staining characteristics of the nucleus material was variable. The contour of the transplanted disc endplates was irregular in all specimens. Conclusions: The structure and function of autologal ***intervetral*** discs were maintained after disc transfer surgery; the transplant discs, however, were not completely normal in either their morphology or their metabolic functioning.

=> e gruber helen/au
 E1 149 GRUBER HELEN/ AU
 E2 2 GRUBER HELEN/ AU
 E3 3--> GRUBER HELEN/ AU
 E4 13 GRUBER HELEN/ AU
 E5 48 GRUBER HELEN/ AU
 E6 1 GRUBER HELEN ELIZABETH/ AU
 E7 1 GRUBER HELEN/ AU
 E8 3 GRUBER HELEN/ AU
 E9 36 GRUBER HELEN/ AU
 E10 1 GRUBER HELEN/ AU
 E11 2 GRUBER HELEN/ AU
 E12 1 GRUBER HELEN/ AU

=> s e5-e6
 L40 49 (GRUBER HELEN E/ AU OR GRUBER HELEN ELIZABETH/ AU)
 => s l40 and interventral/ab
 'AB' IS NOT A VALID FIELD CODE

L41 5 L40 AND INTERVERTBRAL/AB
 => dup rem l41
 PROCESSING COMPLETED FOR L41
 L42 4 DUP REM L41 (1 DUPLICATE REMOVED)
 => d 1-bib ab
 YOU HAVE REQUESTED DATA FROM 4 ANSWERS -
 CONTINUE? Y/(N)/Y

L42 ANSWER 1 OF 4 INPADOC COPYRIGHT 2000 EPO
 LEVEL 1
 AN 132171799 INPADOC ED 20000801 EW 200030 UP
 20000801 UW 200030
 T1 METHOD FOR PRODUCING HUMAN
 INTERVERTBRAL DISC CELLS
 IN HANLEY, JR., EDWARD NATHANIEL; GRUBER, HELEN
 ELIZABETH
 INS HANLEY JR EDWARD NATHANIEL, ***GRUBER
 HELEN ELIZABETH***
 INA US; US
 PA CHARLOTTE-MECKLENBURG HOSPITAL AUTHORITY
 PAS CHARLOTTE MECKLENBURG HOSPITAL
 PAA US
 DT Patent
 PIT USA UNITED STATES PATENT
 PI US 6080579 A 20000627
 AI US 1997-979674 A 19971126
 PRAI US 1997-979674 A 19971126
 AB There is provided a method for growing human ***intervetral*** cells. Disc tissue is surgically removed from a normal disc of a patient, the cells expanded by feeding with a cell stimulant such as a growth factor, or a cytokine or a bioactive agent to form monolayer primary cell cultures on a plastic mesh such as a nylon mesh. In the case of a growth factor, fetal bovine serum is preferred as it improves cell proliferation and production of appropriate extracellular matrix components. In another aspect of this invention, the monolayer primary cell cultures are seeded in alginate or agarose and fed again with the cell stimulant until three-dimensional cell cultures are formed. The cells are recovered from the alginate or agarose or from monolayer cultures. Re-implantation is carried out using bioreabsorbable carriers or cell suspensions.

L42 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2000 ACS

AN 2000/604181 CAPLUS
 TT Optimization of 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester
 for labeling human ***Intervertebral*** disc cells in vitro
 AU ***Gruber, Helen E.*** ; Leslie, Kelly P.; Ingman, Jane A.; Hanley, Edward N., Jr.
 CS Orthopaedic Research Biology, Carolinas Medical Center, Charlotte, NC,
 28232, USA
 SO Biotech. Histochem. (2000), 75(3), 118-123
 CODEN: BIHEUJ; ISSN: 1052-0295
 PB Lippincott Williams & Wilkins
 DT Journal
 LA English
 AB We have assessed the utility of an intracellular fluorochrome, 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester (CFSE), as a tracking label for human ***Intervertebral*** disc cells in vitro. Although 5 μ m M provides adequate intracellular labeling for whole cell fluorescent microscopic identification of labeled cells, 20 μ m M was preferable for immunocytochem. localization of paraffin embedded labeled cells. Electron dense vesicles are seen at the ultrastructural level in labeled cells. Discrete vesicular labeling can also be obsd. in whole cell mounts viewed with fluorescence microscopy. Whole cells retain good label for 6 wk. CFSE labeling is relatively easy, nontoxic to cells and nonradioactive. Initial optimization of dose with specific cells types is recommended when confirmation of pos. immunocytochem is needed for tissue engineering studies.

L42 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2000 ACS
 AN 1997/772149 CAPLUS
 DN 128 87023
 TT Characterization and phenotypic stability of human disk cells in vitro
 AU ***Gruber, Helen E.*** ; Siasly, Audrey A.; Hanley, Edward N., Jr.
 CS Department of Orthopaedic Surgery, Carolinas Medical Center, Charlotte, NC,
 USA
 SO Matrix Biol. (1997), 16(5), 285-288
 CODEN: MATBOE; ISSN: 0945-053X
 PB Gustav Fischer Verlag Jena GmbH
 DT Journal
 LA English
 AB Successful in vitro studies of disk cells require interaction of the cell with a compatible microenvironment which favors expression of the disk

cell phenotype. The objective of this study was to characterize cells grown by standardized methods of isolation and passage, and culture cells from the human annulus in three-dimensional culture. Cells from the annulus of 11 individuals were cultured in alginate or agarose for days, and extracellular matrix components were evaluated with immunohistochem. and quant. anal. of the percent of colonies producing Type I or II collagen, 4-sulfated chondroitin sulfate or keratan sulfate. Results show prodn. of these four extracellular matrix products through multiple passages and support the phenotypic stability of disk cells in three-dimensional culture.

L42 ANSWER 4 OF 4 BIOSIS COPYRIGHT 2000 BIOSIS
 DUPLICATE 1
 AN 1997/449238 BIOSIS
 DN PREV199799748461
 TT Human ***Intervertebral*** disc cells from the annulus: Three-dimensional culture in agarose or alginate and responsiveness to TGF-beta-1.
 AU ***Gruber, Helen E. (1)*** ; Fisher, E. Carl, Jr.; Desai, Bhaloo; Siasly, Audrey A.; Hoelecker, Gretchen; Hanley, Edward N., Jr.
 CS (1) Dep. Orthopaedic Surgery, Carolinas Med. Cent., P.O. Box 32861, Charlotte, NC 28232 USA
 SO Experimental Cell Research, (1997) Vol. 235, No. 1, pp. 13-21, ISSN: 0014-4827.
 DT Article
 LA English
 AB Cell culture procedures were developed for use with surgical and normal control specimens of the annulus of the human ***Intervertebral*** disc. Cells were established in monolayer explant culture and seeded into three-dimensional growth environments of alginate or agarose, under these growth conditions cells assumed a rounded phenotype and formed colonies. A novel method of layering suspensions of cells onto cell well inserts proved technically much easier than the microbead culture method. Immunohistochemistry was utilized to demonstrate in vitro production of the following extracellular matrix components: types I, II, III, and collagen, 4-S-chondroitin sulfate, and keratan sulfate. Young and old age- and gender-matched cells grown in the presence of TGF-beta-1 showed

significant enhancement of proliferation after 4 days of exposure to TGF-beta with a lessened mitogenic response present after 10 days. Molecular studies of proteoglycan gene expression showed that at 4 days young normal cells had increased biglycan, but not decorin, message levels. Decorin expression was unchanged at Day 4 and decreased or shut off by Day 10. Results support the use of three-dimensional culture systems for in vitro evaluation of human disc cell function and expand our understanding of the in vitro behavior of these cells.

=> s 137 or 140
 L43 72.137 OR L40
 => s 143 and disc#ab:bi
 'AB' IS NOT A VALID FIELD CODE
 L44 11 L43 AND DISC#AB,B1
 => dup rem 144
 PROCESSING COMPLETED FOR L44
 L45 11 DUP REM L44 (0 DUPLICATES REMOVED)
 => d 1-bib ab
 YOU HAVE REQUESTED DATA FROM 11 ANSWERS - CONTINUE? Y(N)/Y

L45 ANSWER 1 OF 11 INPADOC COPYRIGHT 2000 EPO
 LEVEL 1
 AN 132171799 INPADOC ED 200008/01 EW 200030 UP
 20000801 UNV 200030
 TT METHOD FOR PRODUCING HUMAN INTERVERTEBRAL ***DISC*** CELLS
 IN HANLEY, JR., EDWARD NATHANIEL; GRUBER, HELEN ELIZABETH
 INS HANLEY JR EDWARD NATHANIEL; ***GRUBER HELEN ELIZABETH***
 INA US; US
 PAS CHARLOTTE-MECKLENBURG HOSPITAL, AUTHORITY PAS CHARLOTTE MECKLENBURG HOSPITAL
 PAA US
 DT Patent
 PTT USA UNITED STATES PATENT
 PI US 6080579 A 20000627
 AI US 1997/979674 A 19971126
 PRAI US 1997/979674 A 19971126
 AB There is provided a method for growing human intervertebral cells
 Disc tissue is surgically removed from a normal

disc of a patient, the cells expanded by feeding with a cell stimulant such as a growth factor, or a cytokine or a bioactive agent to form monolayer primary cell cultures on a plastic mesh such as a nylon mesh. In the case of a growth factor, fetal bovine serum is preferred as it improves cell proliferation and production of appropriate extracellular matrix components. In another aspect of this invention, the monolayer primary cell cultures are seeded in alginate or agarose and fed again with the cell stimulant until three-dimensional cell cultures are formed. The cells are recovered from the alginate or agarose or from monolayer cultures. Re-implantation is carried out using bioresorbable carriers or cell suspensions.

L45 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2000 ACS AN 2000:604181 CAPLUS T1 Optimization of 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester for labeling human intervertebral ***disc*** cells in vitro AU ***Gruher, Helen E.*** ; Leslie, Kelly P.; Ingram, Jane A.; ***Hanley, Edward N., Jr.*** CS Orthopaedic Research Biology, Carolinas Medical Center, Charlotte, NC, 28232, USA SO Biotech. Histodiam. (2000), 75(3), 118-123 CODEN: BIHEUJ; ISSN: 1052-0295 PB Lippincott Williams & Wilkins DT Journal LA English AB We have assessed the utility of an intracellular fluorochrome, 5-(and-6)-carboxyfluorescein diacetate succinimidyl ester (CFSE), as a tracking label for human intervertebral disk cells in vitro. Although 5 .mu.M provides adequate intracellular labeling for whole cell fluorescent microscopic identification of labeled cells, 20 .mu.M was preferable for immunocytochem. localization of paraffin embedded labeled cells. Electron dense vesicles are seen at the ultrastructural level in labeled cells. Discrete vesicular labeling can also be obsd. in whole cell mounts viewed with fluorescence microscopy. Whole cells retain good label for 6 wk. CFSE labeling is relatively easy, nontoxic to cells, and nonradioactive. Initial optimization of dose with specific cells types is recommended when confirmation of pos. immunocytochem. is needed for tissue engineering studies.

L45 ANSWER 3 OF 11 INPADOC COPYRIGHT 2000 EPO LEVEL 1 AN 50459235 INPADOC EW 199925 UP 19991109 UW 199944 T1 METHOD FOR PRODUCING HUMAN INTERVERTEBRAL ***DISC*** CELLS IN HANLEY, EDWARD, NATHANIEL, JR., GRUBER, ELIZABETH HELEN INS ***HANLEY EDWARD NATHANIEL, JR*** ; GRUBER ELIZABETH HELEN INA US; US PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY; HANLEY, EDWARD, NATHANIEL, JR., GRUBER, ELIZABETH HELEN PAS CHARLOTTE-MECHLENBURG HOSPITAL, HANLEY EDWARD NATHANIEL, JR., GRUBER ELIZABETH HELEN PAA US; US; US TL English; French LA English DT Patent PT WOAI PUBL. OF THE INT. APPL. WITH INT. SEARCH REPORT PI WO 9927077 A1 19990603 DS RW; GH; GM; KE; LS; MW; SD; SZ; UG; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM; AT; BE; CH; CY; DE DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML; MR; NE; SN; TD; TG W; AL; AM; AT; AU; AZ; BA; BG; BR; BY; CA; CH; CN; CU; CZ; DE; DK; EE; ES; FI; FR; GB; GE; GH; GM; HR; HU; ID; IL; IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR; LS; LT LU; LV; MD; MG; MK; MN; MW; MX; NO; NZ; PL; PT; RO; RU; SD; SE; SG; SI; SK; SL; TJ; TM; TR; TT; UA; UG; US; UZ; VN; YU; ZW AI WO 1998-US25137 A 19981124 PRAI US 1997-979674 A 19971126 OSDW 99-385212 AB There is provided a method for growing human intervertebral cells. ***Disc*** tissue is surgically removed from a normal ***disc*** of a patient, the cells expanded by feeding with a cell stimulant such as a growth factor, or a cytokine or a bioactive agent to form monolayer primary cell cultures on a plastic mesh such as a nylon mesh. In the case of a growth factor, fetal bovine serum is preferred as it improves cell proliferation and production of appropriate extracellular matrix components. In another aspect of this invention, the monolayer primary cell cultures are seeded in alginate or agarose and fed again with the cell stimulant until three-dimensional cell cultures are formed. The

cells are recovered from the alginate or agarose or from monolayer cultures. Re-implantation is carried out using bioresorbable carriers or cell suspensions.

L45 ANSWER 4 OF 11 INPADOC COPYRIGHT 2000 EPO LEVEL 1 AN 113020209 INPADOC ED 19990916 EW 199936 UP 19990916 UW 199936 T1 METHOD FOR PRODUCING HUMAN INTERVERTEBRAL ***DISC*** CELLS IN EDWARD NATHANIEL HANLEY JR., ELIZABETH HELEN GRUBER INS ***HANLEY EDWARD NATHANIEL, JR*** ; GRUBER ELIZABETH HELEN PA CHARLOTTE-MECHLENBURG HOSPITAL AUTHORITY PAS CHARLOTTE-MECHLENBURG HOSPITAL DT Patent PT AUAI COMP. SPEC. OPEN TO PUB. INSP. PI AU 9916045 A1 19990615 AI AU 1999-16045 A 19981124 PRAI US 1997-979674 A 19971126 WO 1998-US25137 W 19981124

L45 ANSWER 5 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS AN 1998:28755 BIOSIS DN PREV19980028755 T1 Characterization and phenotypic stability of human ***disc*** cells in vitro. AU ***Gruher, Helen E.*** ; Stasky, Audrey A.; ***Hanley, Edward N., Jr.*** CS Dep. Orthopedic Surg., Carolinas Med. Center, Charlotte, NC USA SO Matrix Biology, (Nov., 1997) Vol. 16, No. 5, pp. 285-288. ISSN: 0945-053X. DT Article LA English AB Successful in vitro studies of ***disc*** cells require interaction of the cell with a compatible microenvironment which favors expression of the ***disc*** cell phenotype. The objective of this study was to characterize cells grown by standardized methods of isolation and passage, and culture cells from the human annulus in three-dimensional culture. Cells from the annulus of 11 individuals were cultured in alginate or agarose for ten days, and extracellular matrix components were evaluated with immunohistochemistry and quantitative analysis of the percent of colonies producing Type I or II collagen, 4-sulfated chondroitin sulfate

or keratan sulfate. Results show production of these four extracellular matrix products through multiple passages and support the phenotypic stability of ***disc*** cells in three-dimensional culture.

L45 ANSWER 6 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1997:449258 BIOSIS
DN PREVI19979748461

TI Human intervertebral ***disc*** cells from the annulus: Three-dimensional culture in agarose or alginate and responsiveness to TGF-beta-1.

AU ***Grubert, Helen E. (1)***; Fisher, E. Carl, Jr.; Desai, Bhaloo;

Shasly, Audrey A.; Hochstetler, Gretchen; ***Hanley, Edward N., Jr.***

CS (1) Dep. Orthopaedic Surgery, Carolinas Med. Cent., P.O. Box 32861,

Charlotte, NC 28232 USA

SO Experimental Cell Research, (1997) Vol. 235, No. 1, pp. 13-21, ISSN: 0014-4827.

DT Article

LA English

AB Cell culture procedures were developed for use with surgical and normal control specimens of the annulus of the human intervertebral

disc

. Cells were established in monolayer explant culture and seeded into three-dimensional growth environments of alginate or agarose; under these growth conditions cells assumed a rounded phenotype and formed colonies. A novel method of layering suspensions of cells onto cell well inserts proved technically much easier than the microbead culture method. Immunohistochemistry was utilized to demonstrate in vitro production of the following extracellular matrix components: types I, II, III, and VI collagen, 4-S-chondroitin sulfate, and keratan sulfate. Young and old age- and gender-matched cells grown in the presence of TGF-beta-1 showed significant enhancement of proliferation after 4 days of exposure to TGF-beta with a lessened mitogenic response present after 10 days. Molecular studies of proteoglycan gene expression showed that at 4 days young normal cells had increased highyca, but not decorin, message levels. Decorin expression was unchanged at Day 4 and decreased or shut off by Day 10. Results support the use of three-dimensional culture systems for in vitro evaluation of human ***disc*** cell function and expand our understanding of the in vitro behavior of these cells.

L45 ANSWER 7 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1995:231324 BIOSIS
DN PREVI19959825624

TI Management of syndromes related to herniated ***discs***

AU ***Hanley, Edward N., Jr.***

CS Dep. Orthopaedic Surgery, Carolinas Med. Cent., Charlotte, NC 28203 USA

SO Weinstein, J. N. [Editor]; Rydevik, B. L. [Editor]; Sonntag, V. K. H. [Editor]; (1995) pp. 165-193. Essentials of the spine. Publisher: Raven Press 1185 Avenue of the Americas, New York, New York 10036-2806, USA. ISBN: 0-7817-0251-8.

DT Book

LA English

L45 ANSWER 8 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1996:71729 BIOSIS
DN PREVI199698643864

TI The indications for lumbar spinal fusion with and without instrumentation.

AU ***Hanley, Edward N., Jr.***

CS Dep. Orthop. Surg., Carolinas Med. Cent., P.O. Box 32861, Charlotte, NC 28232-2861 USA

SO Spine, (1995) Vol. 20, No. 24 SUPPL., pp. 143S-153S. ISSN: 0362-2436.

DT General Review

LA English

AB Study Design: Literature review. Objectives: A review, analysis, and discussion of the extensive literature on lumbar spinal fusion were done

to attempt to place in perspective the indications and success rates for lumbar spinal fusion with and without instrumentation. Summary of Background Data: A wide variety of lumbar spinal conditions have been managed by spinal fusion. Results appear better when the diagnosis is very specific and related to definable instability or deformity in patients with a stable psychologic state. Methods: Search of literature.

Results: Success rates are higher in isthmus spondylolisthesis, unstable spinal stenosis syndromes (degenerative spondylolisthesis, degenerative scoliosis), and in patients with objective segmental instability. Variable success rates are reported for ***disc***-related low back pain conditions and in patients with failed previous surgery. Instrumentation appears to be beneficial in situations where complex deformities or obvious instability is present. When applied for other diagnoses (e.g., internal ***disc*** disruption), results appear no better than with

traditional surgical techniques. Conclusions: The outcome of lumbar spinal fusion depends on careful assessment of the anatomic cause of pain and of the patient's functional state and expectations.

L45 ANSWER 9 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1996:71722 BIOSIS
DN PREVI199698643857

TI Biomechanics introduction: 1995 Focus Issue meeting on fusion. AU Pope, Malcolm H.; Goel, Vijay K.; Sumner, Dale R.; Andersson, Gunnar B., Jr.

(1) Boden, Scott D.; Fraser, Robert D.; Garfin, Steven R.; ***Hanley, Edward N., Jr.***; Katz, Jeffrey N.; Sonntag, Volker K. H.; Spittl, Kevin F.; Zdeblick, Thomas A.

CS (1) Rush-Presbyterian-St. Luke's Med. Cent., 1653 W. Congress Parkway, Chicago, IL 60612-3864 USA

SO Spine, (1995) Vol. 20, No. 24 SUPPL., pp. 84S. ISSN: 0362-2436.

DT Article

LA English

L45 ANSWER 10 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
AN 1994:445252 BIOSIS
DN PREVI199497458252

TI Lumbar intervertebral ***disc*** transfer: A canine study. AU Fridt, Steven L. (1); ***Hanley, Edward N., Jr.***; Meyer, Ralph A.; Ramp, Warren K.; Chapman, Todd M.

CS (1) Dep. Orthopaedic Surg., Carolinas Med. Cent., P.O. Box 32861, Charlotte, NC 28232 USA

SO Spine, (1994) Vol. 19, No. 16, pp. 1826-1835. ISSN: 0362-2436.

DT Article

LA English

AB Study Design: Degenerative lumbar ***disc*** disease has been implicated as a cause of low back pain. Current treatment options for low back pain involve morphologic fusion of the involved segments and have variable success rates. This is an experimental study of lumbar intervertebral ***disc*** transplantation using a canine surgical model. Objectives: This study evaluated the feasibility of lumbar ***disc*** transplantation and its effects on ***disc*** metabolism and morphology. Method: Eight mature mongrel dogs underwent transfer surgeries, in which the L2-L3 and L4-L5 intervertebral ***discs***, with a small segment of adjacent superior and inferior vertebral body, were removed and transposed. The transplanted ***discs*** were stabilized by plates or by a flexible cable wire

construct using Sanger cables (DANEK, Inc., Memphis, TN).
 Unrestricted
 activity was allowed postoperatively. At 4 months, the spines were harvested, and the transplanted ***discs*** were evaluated biochemically and histologically. Intervening nontransplanted ***discs*** served as viable controls and three frozen ***discs*** served as nonviable controls. Cell viability was assessed by measuring proteoglycan synthesis and DNA content Results: Proteoglycan synthesis (35S uptake normalized to DNA content) was maintained in transplanted anulus fibrosis tissue, but was decreased in nucleus pulposus samples (P < 0.05). DNA content was not altered significantly in the transplanted ***discs***. Histologic analysis of the transplanted ***discs*** showed revascularization and remodeling of the bone adjacent to the ***disc*** and preservation of the lamellar architecture of the anulus fibrosis. The transplanted nucleus pulposus samples had chondrocyte-like cells present, but the staining characteristics of the nucleus material was variable. The contour of the transplanted ***disc*** endplates was irregular in all specimens. Conclusions: The structure and function of autograft intervertebral ***discs*** were maintained after ***disc*** transfer surgery; the transplant ***discs***, however, were not completely normal in either their morphology or their metabolic functioning.

L45 ANSWER 11 OF 11 BIOSIS COPYRIGHT 2000 BIOSIS
 AN 1994-72250 BIOSIS
 DN PREV199497185250
 T1 Traumatic lumbar/pelvic spondylosis.
 AU ***Hanley, Edward N., Jr. (1)***; Knox, Benjamin D.; Ramaswamy, Sar; Moosy, John J.
 CS (1) Dep. Orthopedic Surg., Carolinas Med. Cent., P.O. Box 32861,
 SO Journal of Bone and Joint Surgery American Volume, (1993)
 Vol. 75, No. 11,
 pp. 1695-1698,
 ISSN: 0021-9355
 DT Article
 LA English

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 In a multile environment, a format can only be used if it is valid in at least one of the files. Refer to file specific help messages or the STNGUIDE file for information on formats available in individual files.
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L45 ANSWER 1 OF 11 INPADOC COPYRIGHT 2000 ERO
 T1 METHOD FOR PRODUCING HUMAN INTERVERTEBRAL ***DISC*** CELLS
 INS HANLEY JR EDWARD NATHANIEL; ***GRUBER HELEN ELIZABETH***
 AB There is provided a method for growing human intervertebral cells.
 Disc tissue is surgically removed from a normal ***disc*** of a patient, the cells expanded by feeding with a cell stimulant such as a growth factor, or a cytokine.

=> d his

(FILE HOME: ENTERED AT 08:38:04 ON 07 SEP 2000)
 FILE MEDLINE: ENTERED AT 08:38:17 ON 07 SEP 2000
 L1 1928 S INTERVERTEBRAL DISC#AB,BI
 L2 81 S L1 AND (IMPLANT? OR TRANSPLANT?)AB,BI
 L3 61 S L2 AND HUMAN/AB,BI
 L4 0 S L3 AND (EXPANDED OR EXPANSION)/AB,BI
 L5 28 S L3 AND TREAT?/AB,BI

FILE STNGUIDE: ENTERED AT 08:40:36 ON 07 SEP 2000
 FILE MEDLINE: ENTERED AT 08:51:22 ON 07 SEP 2000
 L6 24 S INTERVERTEBRAL DISC CELL#AB,BI
 L7 0 S L6 AND IMPLANT?/AB,BI
 L8 5 S L6 AND MODEL?/AB,BI

FILE STNGUIDE: ENTERED AT 08:52:43 ON 07 SEP 2000
 FILE MEDLINE: ENBASE, BIOSIS, INPADOC, CAPLUS
 ENTERED AT 08:58:11 ON 07
 SEP 2000
 L9 18 S L8
 L10 8 DUP REM L9 (10 DUPLICATES REMOVED)

FILE MEDLINE: ENTERED AT 08:59:43 ON 07 SEP 2000
 L11 2789 S ANNULUS/AB,BI
 L12 413 S L11 AND (IMPLANT? OR TRANSPLANT?)AB,BI
 L13 16 S L12 AND DISC/AB,BI

FILE STNGUIDE: ENTERED AT 09:01:42 ON 07 SEP 2000

FILE MEDLINE: ENBASE, BIOSIS, INPADOC, CAPLUS
 ENTERED AT 09:08:44 ON 07
 SEP 2000
 L14 46 S L13
 L15 31 DUP REM L14 (15 DUPLICATES REMOVED)

FILE MEDLINE: ENTERED AT 09:10:03 ON 07 SEP 2000
 L16 1339 S IDIOPATHIC SCOLIOSIS/AB,BI
 L17 11 S L16 AND INTERVERTEBRAL DISC#AB,BI
 L18 1359 S DISC HERMIATION/AB,BI
 L19 245 S L18 AND INTERVERTEBRAL DISC#AB,BI
 L20 9 S L19 AND (ANNULUS OR NUCLEOS?)AB,BI
 L21 466 S DISC DEGENERATION/AB,BI
 L22 169 S L21 AND INTERVERTEBRAL DISC#AB,BI
 L23 18 S L22 AND (ANNULUS OR NUCLEOS?)AB,BI
 L24 2072 S SPINAL STENOSIS/AB,BI
 L25 54 S L24 AND INTERVERTEBRAL DISC#AB,BI
 L26 1 S L25 AND (ANNULUS OR NUCLEOS?)AB,BI
 L27 3 S L25 AND (IMPLANT? OR TRANSPLANT? OR ALLOGRAFT?)AB,BI
 L28 5231 S L16 OR L18 OR L21 OR L24
 L29 18 S L28 AND ALLOGRAFT?/AB,BI
 L30 24 S INTERVERTEBRAL DISC CELL#AB,BI
 L31 0 S L30 AND (TRANSPLANT? OR IMPLANT? OR ALLOGRAFT?)AB,BI

FILE MEDLINE: ENBASE, BIOSIS, INPADOC, CAPLUS
 ENTERED AT 09:16:34 ON 07
 SEP 2000
 L32 83 S L30
 L33 36 DUP REM L32 (47 DUPLICATES REMOVED)
 L34 0 S INTERVERTEBRAL DISC CELL# AND AUTOLOGOUS/AB,BI
 L35 40 S INTERVERTEBRAL DISC AND AUTOLOGOUS/AB,BI
 L36 24 DUP REM L35 (16 DUPLICATES REMOVED)
 L37 E HANLEY EDW ARD/AU
 L38 31 S E6-E8
 L39 6 DUP REM L38 (1 DUPLICATE REMOVED)
 L40 E GRUBER HELEN/AU
 L41 49 S E5-E6
 L42 5 S L40 AND INTERVERTEBRAL/AB,BI
 L43 4 DUP REM L41 (1 DUPLICATE REMOVED)
 L44 72 S L37 OR L40
 L45 11 S L43 AND DISC# AB,BI
 11 DUP REM L44 (0 DUPLICATES REMOVED)

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